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Purpose. This transmits the National Plant Materials Manual (NPMM).

Effective Date. This manual is effective when received.

Directive Canceled. This NPMM supersedes and cancels the National Plant Materials Handbook issued June 16, 1974.

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 Acting for

PAUL M. HOWARD
Deputy Chief for Technology

Enclosure

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PART 539 - INTRODUCTION

539.2(b)

§539.0 Authority.

(a) Basic authority for the SCS plant materials program is provided in the Soil Conservation Act of 1935 (Public Law 74-46, 49 Stat. 163, 16 U.S.C. 590[a-f]). This act declares that it is the policy of Congress to provide permanently for the control and prevention of soil erosion and thereby preserve natural resources.

(b) SCS rules and regulations concerning plant materials work are published in the Code of Federal Regulations (7 CFR Part 613) and in an amendment published in the Federal Register, vol. 49, No. 62, March 29, 1984 (the latter is appended as exhibit 542.52).

§539.1 Purpose.

The purpose of SCS plant materials activities is to assemble, test, and release plant materials for conservation use; determine techniques for their successful use; provide for their commercial increase; and promote the use of plant materials needed to meet the objectives and priorities of the National Conservation Program (exhibit 542.0).

§539.2 Policy.

It is SCS policy to:

(a) Conduct plant materials work to meet the objectives of the National Program for Soil and Water Conservation developed to comply with Public Law 95-192, the Soil and Water Resources Conservation Act of 1977 (RCA).

(b) Conduct plant materials work in cooperation with other agencies of the United States Department of Agriculture, such as the Agricultural Research Service (ARS), and with federal and state research agencies, including state agricultural experiment stations. The major emphasis of SCS plant materials work is on finding suitable plants for erosion control on soils and sites where establishing vegetation is difficult. In contrast, the major emphasis of research agencies and organizations is on developing or improving economically important crops.

539.2(c)

(c) Follow the guidelines contained in "A Statement of Responsibilities and Policies Relating to Development, Release and Multiplication of Publicly Developed Varieties of Seed-Propagated Crops" in testing and releasing new seed-propagated herbaceous plant materials. This document, the ESCOP Agreement, was revised and adopted in June 1972 by land-grant colleges, SCS, and ARS. This agreement is discussed in §540.17(d)(1) of this manual, and a copy is provided in exhibit 542.1.

§539.3 Objectives.

The objectives of SCS plant materials activities are consistent with the objectives of the National Conservation Program; they are to select and develop special and improved plants and to determine reliable techniques for successfully establishing and maintaining the plants to:

- (a) Control soil erosion and improve soil on all lands;
- (b) Improve windbreaks and shelterbelts to reduce wind erosion and prevent crop damage;
- (c) Improve forage quality and quantity on pasture and rangeland by selecting species that provide better soil protection and water conservation;
- (d) Improve water quality and reduce sediment movement by stabilizing critical, high-yielding sediment sources, such as surface-mined lands, highway slopes, recreation sites, and urban and industrial development areas;
- (e) Improve water quality and prevent soil erosion by stabilizing streambanks and inland and coastal shorelines;
- (f) Improve fish and wildlife habitat; and
- (g) Manage organic waste.

§539.4 Functions.

SCS operates plant materials centers (PMC's) or contracts for or enters into memorandums of understanding with universities or other state and federal agencies and organizations for the operation of PMC's. It employs specialists to select, provide for the commercial increase of, and promote the use of plant materials needed in conservation programs. The responsibilities of SCS are to:

- (a) Identify the need for suitable plant materials and for cultural and management methods for use in resource management systems;

- (b) Assemble and comparatively evaluate plant materials at PMC's and at off center sites where soil, climate, or other conditions differ significantly from those at the PMC's;
- (c) Make comparative field plantings for final testing of promising plants and techniques with conservation districts and cooperators;
- (d) Work with experiment stations, crop improvement associations, and other state and federal agencies to cooperatively release improved conservation plants and to arrange for the maintenance of breeder or foundation stocks in a manner consistent with the certification standards of the state where released and of the particular species;
- (e) Produce limited amounts of foundation or foundation-quality seed and plants to be made available by grant or at equitable cost to soil and water or other conservation districts or by exchange with cooperating state or federal experiment stations, other federal and state research agencies, and state seed-certifying organizations to establish seed fields, seed orchards, or vegetative-increase plantings; and
- (f) Encourage and assist soil and water or other conservation districts, commercial seed producers, and commercial and state nurseries to produce needed plant materials and promote use of these materials in conservation programs.

§539.5 Line and staff responsibilities.

Line and staff responsibilities for plant materials activities are provided in this manual, in state supplements, and in appropriate SCS state memorandums.

- (a) Chief. The Chief, with line and staff assistance, provides national direction to the plant sciences work.
- (b) Deputy Chief for Technology. The Deputy Chief for Technology has responsibility for directing plant sciences work.
- (c) Director of the Ecological Sciences Division. The director of the Ecological Sciences Division is the principal staff officer who coordinates and directs all plant sciences work in SCS. He also serves as chairman of the Interagency Advisory Committee for the National Plant Materials Center (NPMC).
- (d) National plant materials specialist. The national plant materials specialist (NPMS) is a staff member of the Ecological Sciences Division. He is the national plant materials program manager and coordinates the national plant materials program.
- (e) National technical center (NTC) director. The director of an NTC serves as chairman of the teams appointed by the Chief to conduct

539.5(e)

functional appraisals of PMC's in his service area. General Manual, 330, Part 404, Subpart D, provides for functional appraisals of PMC's. Exhibit 542.2 of this manual is a suggested outline of major items to be considered in conducting a functional appraisal of a PMC.

(f) National technical center plant materials specialist.

(1) A plant materials specialist (PMS) assigned to each NTC coordinates the technical plant materials program within that service area. These duties include:

- Through the appropriate state conservationist (STC), provides technical guidance to the state plant materials program, including suggesting changes in project plans and recommending new studies on identified problems;
- Keeps other plant scientists at the NTC informed of plant materials activities and recommends joint reviews of plant materials work with other NTC specialists;
- Provides technical coordination of SCS plant materials activities with other federal regional agencies involving multiple PMS or PMC service areas;
- Represents SCS in regionwide relationships with associations and organizations, i.e., seed and nursery associations, etc.;
- Allocates and coordinates the production of plant materials used in the NTC service area or produced for use elsewhere;
- Prepares, publishes, or distributes regional or general materials;
- Represents the plant materials discipline at the NTC level in interdisciplinary activities and coordinates the plant materials program between ecological sciences disciplines, including meeting periodically at PMC's to be briefed on current activities and accomplishments;
- Is a member of the regional technical committee on introduction, maintenance and evaluations of germplasm; and
- Works with NTC and state counterparts to assure that SCS plant releases are included in state standards and specifications.

(2) NTC PMS's also have certain national responsibilities. These are determined jointly by the NHQ and the director of the respective NTC and reflected in the position description of the NTC PMS. Such national responsibilities include:

- National leadership for the review, revision, and update of the National Plant Materials Manual;
- National responsibility for the collection, analysis, and appropriate distribution of program output indicators;
- Leadership for the development and implementation of a National Plant Adaptation Data System for use by field offices;
- Technical leadership as a member of the National PMC Interagency Advisory Committee; and
- National leadership for the maintenance, revision, extension and update of the National Plant Materials Data System (NPMDS);

(g) State conservationist.

(1) Each state conservationist, assisted by his staff, administers the plant materials work in his state. His responsibilities are listed in §540.20(a).

(2) In states where a PMC is located, the state conservationist serves as chairperson of the state conservationists' PMC advisory committee. This committee is appointed annually by the Chief. The duties of the advisory committee are listed in §540.13(a).

(h) State resource conservationist. The state resource conservationist is generally responsible for overall technical supervision and coordination of the state's plant materials program. His duties are discussed in §540.20(b).

(i) Plant materials specialist.

(1) A PMS is a member of the plant sciences support staff in each state he serves; he generally serves two or more states. The PMS provides technical leadership for the states' plant materials programs. The PMS provides leadership for the state plant materials committee(s). The PMS conducts a field planting program designed to determine the adaptation of selected plants to soils and climates. The PMS serves as a staff person to the state conservationist's advisory committee. The PMS also works with plant materials committees to determine the species to be assembled for testing, assists the PMC manager in assembling documentary data for plants selected for release, and works with seed growers and nurserymen to insure an adequate supply of conservation plants. The PMS is responsible for coordinating SCS plant materials work with other state and federal agencies in the states he serves. These duties are discussed in more detail in §542.20(c).

(2) A PMS may be assigned special responsibilities having national implications. These are determined jointly by the NHQ and the

539.5 (i)(2)

state conservationist of the respective state and reflected in the job description of the PMS.

(j) Plant materials center manager. The PMC manager is responsible for operation of the PMC and assigned field evaluation plantings. The manager conducts the work of the PMC, which is directed toward finding solutions to priority problems documented in the PMC long-range program. The duties of the PMC manager are detailed in subpart B of Part 540.

(k) Area and district conservationists. Area and district conservationists have line and staff responsibilities in the plant materials program. They identify the need for new plants, collect promising plants, work with cooperators in selecting field planting locations, assist cooperators in properly establishing and managing field plantings, work with cooperators and field specialists in evaluating field plantings, promote production and use of new plants that have been officially released, and maintain close liaison with the conservation district boards and other conservation oriented boards and local groups. These responsibilities are discussed in detail in §540.20(d) and (e).

(l) Soil conservation districts. Participation of conservation district boards and conservation district cooperators in the plant materials program is essential to the successful selection and development of improved plants and to the commercial production and use of the plants in conservation programs. The role of conservation districts in the SCS plant materials program is discussed in detail in §540.21.

PART 540 - PLANT MATERIALS PROGRAMS

540.0(b)

§540.0 General.

(a) The purpose of the SCS plant materials program is to assemble, test, and release plant materials for conservation use, determine techniques for their successful use, provide for their commercial increase, and promote the use of plant materials needed to meet the objectives and priorities of the National Conservation Program. To accomplish this, SCS operates a national plant materials center and field plant materials centers, and conducts a plant materials program as a part of its ongoing coordinated conservation-operations activities.

(b) Exhibit 542.3 is a listing of some terms commonly used in plant materials activities.

Subpart A - National Plant Materials Center

SUBPART A - NATIONAL PLANT MATERIALS CENTER

540.2(f)(1)

§540.1 Purpose.

The NPMC at Beltsville, Maryland, is the central facility for assembling, accessioning, increasing, and distributing plant materials from foreign sources that may be useful in helping to solve resource problems identified in the long-range program of the field PMC's.

§540.2 Functions.

The NPMC:

(a) Requests, receives, assembles, and, as needed, increases seed and vegetative materials to meet requests of various field PMC's according to priorities established in the long-range program of each PMC. In accomplishing this function, the NPMC:

(1) Works closely with the Plant Introduction Office, Germplasm Resources Laboratory, ARS, at Beltsville, Maryland.

(2) Serves as coordinator for the acquisition of new plant introductions from ARS, as requested by field PMC's. See §540.15(b)(2) and (3) for additional information.

(b) When it receives the total amount of the initial quantity of a foreign collection, is obligated to make part of the initial increase available to the appropriate ARS regional plant introduction station.

(c) Works closely with the Plant Protection and Quarantine Office, APHIS, at Beltsville, to insure compliance with quarantine restrictions governing the flow of plant materials in and out of the United States.

(d) Assembles and distributes seed and plants to meet foreign requests.

(e) Provides for the increase of plant materials for final testing if a field PMC is unable to produce adequate amounts.

(f) Conducts specialized projects to help solve problems common to all or several PMC's, such as projects to:

(1) Determine germination potential, optimum germination temperatures, number of seeds per pound;

Part 540 - Plant Materials Programs

540.2(f)(2)

(2) Determine propagation techniques for difficult-to-propagate material, using such techniques as tissue culture and chemical treatment of seed;

(3) Determine forage quality of plant material in advanced testing as requested by field PMC's.

(g) Maintains contacts for authoritative identification of plant specimens submitted by SCS personnel. See exhibit 542.4.

(h) Has the following ADP responsibilities:

(1) Accessions plant materials collected from foreign and domestic sources in the National Plant Materials Data System (NPMDS) ;

(2) Manages SCS-ESC-008, Annual Report;

(3) Develops and manages specialized data bases such as an SCS seed inventory and a list of commercial sources of plant materials.

(i) Prepares background information about new plants and other plant materials assembled for distribution.

(j) Arranges for clearance for cultivar names as discussed in detail in §540.19(c)(1) and (2).

(k) Shares responsibilities for evaluation of plant materials with field PMC's serving MLRA's 133(N), 136(N), 147, and 148.

(l) Conducts literature searches as requested by field PMC's.

(m) Maintains a permanent national file on the documentation of plants selected for advanced evaluations (§540.16[a][4][iii]) and planting guides (540.25[c][3][i]).

§540.3 Personnel.

Staffing procedures generally are the same as those for field PMC's, discussed in §540.12.

§540.4 Administration.

(a) National plant materials specialist. The national PMS is responsible for administrative and technical supervision of the NPMC manager. He also provides technical assistance to the advisory committee for the NPMC.

(b) Interagency Advisory Committee for the National Plant Materials Center. The advisory committee for the NPMC is appointed by the Chief. It consists of the director of the Ecological Sciences Division, who

serves as chairman; one state conservationist; one NTC PMS; and the director of the Beltsville Agricultural Research Center. The committee meets at least once a year with the NPMC manager and the NPMS to provide guidance to the NPMC.

(c) National technical center plant materials specialist. NTC PMS's communicate directly with the NPMC manager about requests for foreign plant materials for the PMC's in their service areas and about any specific plant materials problem occurring in the states under their technical supervision. The NPMC manager, in turn, advises the NTC PMS's directly about available materials and about new developments or problems related to plant materials.

§540.5 Operating Procedures.

Procedures for preparing NPMC long-range programs, project plans and supplements, and reports are the same as those discussed for field PMC's in §540.14.

Subpart B - Field Plant Materials Centers

SUBPART B - FIELD PLANT MATERIALS CENTERS

540.13(a)

\$540.10 General.

A PMC is a field unit operated by SCS or by another agency or organization in cooperation with SCS. It consists of a staff, land, buildings, equipment, and other necessary facilities for the assembly, testing, and release of plant materials and the development of cultural, management, and production techniques needed in resource conservation programs.

\$540.11 Service areas.

PMC's are located to serve major land resource areas (usually occurring in two or more states) having common major characteristics. The location of each PMC is shown in exhibit 542.5.

\$540.12 Personnel.

(a) A PMC staff generally includes a manager, soil conservationist(s), biological technician(s), secretaries, and other employees as needed.

(b) Professional employees at PMC's are usually classified as soil conservationists, but other ecological scientists may be assigned to PMC's. Qualification standards for soil conservationists, biological technicians, and secretaries are provided in Qualification Standards Handbook X-118, which is issued by the Office of Personnel Management.

(c) Training is an integral part of the career development system. It is to be consistent with the provisions of the SCS Training Handbook. Exhibit 542.6 is a checklist for developing a training plan for PMC managers and soil conservationists assigned to PMC's. Exhibit 542.7 is a checklist for developing a training plan for biological technicians employed at PMC's.

\$540.13 Administration.

Administratively, PMC's are under the direction of the state conservationist of the state in which they are located. PMC's are further guided by existing SCS policy directives.

(a) State conservationists' PMC advisory committee. State conservationists' advisory committees for field plant materials centers

Part 540 - Plant Materials Programs

540.13(a)

and the Interagency Advisory Committee for the National Plant Materials Center are appointed annually by the Chief. The duties of the advisory committees include:

(1) Determining the need for a technical committee, representing each state served by the PMC, to assist in making recommendations to the advisory committee;

(2) Preparing and keeping current a long-range program for the PMC(s) (§540.14[a]);

(3) Assigning priorities to each problem described in the PMC long-range program, and determining distribution of the PMC long-range program;

(4) Developing and recommending to the Chief multistate agreements to achieve SCS plant materials objectives;

(5) Reviewing and arranging for approval of PMC project plans (§540.14[b]);

(6) Reviewing the PMC annual plan of operations (§540.14[c]);

(7) Evaluating the workload at the PMC and developing the annual budget request based on priorities and projects;

(8) Reviewing and determining distribution of annual plant materials reports (§541.0);

(9) Determining the feasibility of one PMC's increasing a plant accession(s) for another PMC (§541.21[b]);

(10) Reviewing and determining need for new equipment and buildings, and providing for the maintenance of existing buildings and equipment (paragraph [c][1] of this section);

(11) Determining whether the PMC operations meet safety regulations and comply with all applicable air and water quality and pesticide standards;

(12) Reviewing related activities of field plantings, the commercial increase of released plants, and the use of improved plants needed in conservation programs;

(13) Determining need for popular or technical articles, publications on plant materials work, and PMC brochures.

(b) Agreements and memorandums of understanding. State conservationists can enter into cooperative agreements and memorandums of understanding to augment and enhance SCS plant materials activities in their states.

(c) Procedures. Administrative procedures are handled directly with the state office. Guidance is provided in the General Manual, in state supplements, and through specific instructions from appropriate administrative personnel, to be obtained prior to any negotiation.

(1) Equipment and buildings. The state conservationists' advisory committee is to review and update, as needed, the long-range schedule of acquisition, replacement, or repair of equipment and buildings. A copy of the revised schedule is to be sent to the Director of Ecological Sciences and to the director of the appropriate NTC. The schedule is to be used in recommending the allocation of funds to meet priority needs. See exhibit 542.8 for an example of how an inventory can be used to develop an equipment and building replacement schedule. If the revised needs are to be considered for the coming fiscal year, the Director of Ecological Sciences must receive the revised schedule by September 1.

(2) Filing. Correspondence, forms, and reference material are to be filed according to existing policy outlined in §120-408 of the General Manual. Color slides and black-and-white photographs also are to be filed according to procedures in the General Manual, but these procedures are to be supplemented by the file outline in exhibit 542.9.

(3) Inventory. Property inventories are to be prepared according to instructions in the General Manual. See §540.18 for procedures to be followed in preparing an inventory of plant materials.

(4) Budget. PMC budgets will be developed by the STC advisory committee in a manner to reflect commitments of resources by PMC projects. The workload analysis by project should be used to assist in developing the budget (exhibit 542.10). The budget is to be prepared each year for use in preparing a state planning budget for the Director of Financial Management. Appropriate adjustments are to be made when the allocation is final. Each PMC manager is responsible for fiscal management within the budget limitation. The PMC manager is to use form SCS-FNM-225, Monthly Obligation, or other monthly analysis form provided by the state office to assist in budget control.

(5) Procurement.

(i) Procurement matters are to be conducted according to procedures outlined in the General Manual and in accordance with existing state policies.

(ii) Copies of SF-18, Invitations to Bid, and specifications of all major purchased items are to be sent to the NPMC to provide a central file for use by other centers in purchasing major items or new equipment. These records are available for review.

Part 540 - Plant Materials Programs

540.14

§540.14 Operating procedures.

(a) PMC long-range program.

(1) Purpose. The purpose of the long-range program is to guide the operations of the PMC. The major emphasis of the PMC program is directed toward solving high-priority resource problems.

(2) Preparation, review, and revision. The state conservationists' advisory committee is responsible for preparing and keeping current the PMC long-range program. The program is to be consistent with the needs and priorities identified in the plant materials long-range programs of the states the PMC serves (§540.22) and with the objectives and priorities of the National Conservation Program (NCP) and the workload analysis (exhibit 542.10).

(3) Content. The PMC long-range program generally includes:

(i) General introduction. This section describes general significant characteristics of the area served by the PMC, such as climates, soils, and land uses. It should not include detailed descriptions of major land resource areas or other published data but should refer to the documents containing this information.

(ii) Problems, needs, priorities, and actions planned. This section describes the problems and needs. It also shows the actions planned on those needs determined to be highly correlated with NCP objectives and priorities. Instructions for determining this correlation are contained in exhibit 542.11.

(iii) Other sections. Other sections discussing activities pertinent to the PMC operations can be included as needed. Such sections generally discuss informational and training activities and recommendations, the PMC's relationships with other agencies and organizations, and the long-range schedule for maintaining and updating facilities and equipment.

(iv) Attachments. To eliminate frequent revision of the entire long-range program, some items can be attachments to the basic long-range program.

(v) Special projects. Special projects such as conservation field trials, involving the ecological sciences staff may be conducted at a PMC. The staff person proposing the projects will prepare a plan that outlines the PMC involvement and will present it to the Advisory Committee for approval.

(b) Project plans. The PMC manager prepares a project plan for each high-priority study or major plant materials activity identified in the PMC long-range program before the center begins work on the problem. See exhibit 542.12.

(1) Purpose. The project plan identifies the problem, defines the objective(s), and outlines the course of work. A project can be planned to help solve all or part of a problem. The content of the project plan is determined by the nature and magnitude of the problem, the extent of prior work, and the availability of information about the problem. The project plan will cover the anticipated life of the study. It may be supplemented at any time that changes are needed. Project plans for initial evaluations will identify the evaluation factors to be used and project the date or season when the evaluation is to be made. This information may be recorded on a SCS-ECS-058 or SCS-ECS-060 or be shown in some other manner. See exhibits 542.22 and 542.24.

(2) Coordination. In many cases, the same conservation problem exists in the service areas of two or more PMC's that may or may not be in the same NTC service area. Such problems can be identified from PMC long-range programs. Work on problems that overlap service areas is to be coordinated. Such coordination helps avoid duplication among PMC's, maintains technical contact among co-workers, and helps provide technical guidance to all personnel regardless of their administrative location. The NTC PMS is to identify problems that overlap PMC service areas and work with the appropriate state conservationists' advisory committee(s), plant scientists, resource conservationists, and cooperating agencies in coordinating work among PMC's in the NTC service area. If a problem overlaps two or more NTC service areas, the NTC PMS serving the area where the major part of the problem exists is to initiate a proposal for effective coordination. The PMC manager(s) will be assisted by PMS's of other NTC's as appropriate.

(3) Supplements to a project plan. All evaluations or activities needed to accomplish project objectives may not be envisioned when the project plan is prepared. As knowledge is gained and progress is made, the existing project plan can be supplemented. If the revised objectives differ significantly from those of the original project plan, a new plan is to be prepared.

(4) Preparation. The PMC manager generally is responsible for preparing project plans and supplements to be carried out by the PMC. He is assisted by the PMS, the NTC PMS, state plant scientists, and cooperating agencies. Under certain circumstances, the PMS is responsible for preparing project plans or supplements for advanced evaluations.

(i) Major current-year activities required by a project become part of the annual plan of operation (APO) for the PMC.

(ii) Project plans or supplements for initial increase, field-scale increase, and breeder and foundation increases are to specify method of propagation, isolation requirements for the species, and cultural and management requirements. A combined project plan for all increase activities may be appropriate.

(5) Review. Project plans and supplements are to be reviewed by the NTC PMS and other appropriate participants before work is initiated.

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(6) Approval. The state conservationist chairing the advisory committee approves or arranges for the approval of project plans and supplements or refers them to other committee or staff members for approval before the PMC begins work on the project.

(7) Identification number. It is essential that a uniform system for numbering PMC project plans be used to (i) avoid confusion in the retrieval of data; (ii) enable grouping of plant performance data on different accession numbers where the plants are being evaluated for a common purpose; (iii) enable data users to retrieve performance data on a state, multistate, or national basis; and (iv) code evaluation stages for ready identification of the progress of a plant.

(8) Content.

(i) Title and identification number.

(ii) Statement of problem.

(iii) Objectives.

(iv) Review of literature on prior research. A thorough review of all previous work, including current and previous activities on a study, is important at the time a project plan is prepared. Sources that can greatly accelerate and provide a more thorough literature search than conventional procedures are:

(A) Current Research Information System. The Cooperative State Research Service can provide valuable information about ongoing research activities through its "Current Research Information System" (CRIS). For each request for research information, CRIS will provide the name of the principal investigator, the performing institution and department, and a brief description of the project (title, objectives, plan of current progress, including important recent publications). Request CRIS information on form AD-427 (exhibit 542.13). Instructions for completing this form are on the back of the form. Blocks 7 through 10 of the form need not be filled out.

(B) AGRICOLA (formerly GAIN). AGRICOLA, another source for literature review, is available through the National Agricultural Library, Beltsville, Maryland 20705. AGRICOLA is an acronym of AGRICultural OnLine Access. It covers the broad field of allied subjects of agriculture, plant sciences, botany, forestry, animal industry, pesticides, and soils. For a literature review, send a Computer Search Request (exhibit 542.14) to the National Agricultural Library Reference Division, Beltsville, Maryland 20705. A search of literature may be made by article, title, author, or general subject matter. The reference service request form provides space for a brief narrative description of a project or categories of subject matter. The requester receives a bibliography of the articles available and an abstract for each document cited. Desired articles may then be requested by submitting an AD-245 form (exhibit 542.15). Photostatic copies of

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articles or abstracts of texts are then forwarded in response to the AD-245-4. This form can be obtained from the U.S. Government Printing Office.

(C) Other data bases are available for use as needed. See exhibit 542.16.

(v) Procedures. The project plan and supplements to a project plan are to document where and when the work is to be done; how long the project will be active; soil mapping unit; featured materials, including standards; planting plan or layout; plot size and type; treatments to be used, if any; data to be obtained; statistical procedures to be used; personnel who are to do the work and an estimate of staff-day requirements; and reports.

(vi) Cooperators or cooperative input.

(vii) Approval. See paragraph (b)(6) of this section.

(c) Annual plan of operations (APO) for the PMC.

(1) The PMC manager is responsible for preparing the APO. The APO is to be consistent with the General Manual Title 330, Part 403, and subsequent directives. Field PMS's and NTC PMS's may assist the PMC manager in preparing the APO. The APO is to be prepared on a fiscal-year basis unless otherwise approved by the state conservationists' advisory committee. The major sources of items for the APO are the PMC workload analysis, long-range program, project plans and supplements, long-range schedule for updating and maintaining equipment and facilities, functional appraisal reports, and the minutes of state conservationists' advisory committee meetings. The APO is to be reviewed by the state conservationists' advisory committee and approved by the PMC manager's supervisor. Arrangements may be made for review of the APO by the PMS's and NTC PMS.

(2) An APO for the PMC is to contain a list of significant objectives and goals and a schedule of significant activities for the coming fiscal year. An attachment to the APO may contain significant items requiring action as shown in the following examples:

(i) Major action items listed by approved projects and supplements;

(ii) Physical plant improvements and maintenance and equipment upgrading;

(iii) New and established plantings for seed and plant production;

(iv) Maintenance of foundation seed and plant production fields;

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(v) Projects to be summarized, published as appropriate, and terminated;

(vi) Planned releases;

(vii) Planned information activities, including illustration and

(viii) Special training activities.

(3) Exhibit 542.17 provides a format for listing activities a due dates for certain ongoing PMC work and is a useful reference in preparing an APO for the PMC.

(d) Conservation plan.

(1) Each PMC is to have a current conservation plan prepared according to instructions in the National Conservation Planning Manual. The district conservationist is to assist in preparing and implementing the plan.

(2) A history of plantings for each field is to be maintained a supplement or an attachment to the conservation plan.

(3) If land(s) or facilities are cooperatively used, the conservation plan is to be jointly prepared by all parties concerned.

(4) The PMC manager is to make maximum use of the conservation plan in working with tour groups and other visitors.

(e) Workload analysis. The PMC manager is to develop a workload analysis. The workload analysis of a PMC operation is a valuable management tool to determine staffing required to accomplish program objectives. The workload analysis can also be used to identify future program needs and as an aid for budget analysis. Exhibit 542.10 can be used as a guide.

§540.15 Assembly of plant materials.

(a) General. Plant materials are assembled from domestic and foreign sources for a specific project. Assemblies are planned to satisfy a specific objective(s) indicated in a project plan or in supplements

(b) Sources of materials.

(1) Plant collections. Propagating materials can consist of single clone or of several clones representing a population.

(i) Collections are to be brought to the PMC from a wide area within the occurrence of the species to insure diversity of ecotypes and variability within a species. Adequate ecotypes of each species are

be collected to insure, insofar as possible, that the ecotypes occurring in the areas of planned use are represented in the assembly.

(ii) Multistate collections can be made and the assembly can be duplicated at more than one PMC. These collections are to be planned so that initial evaluations at participating PMC's can be concurrently conducted. This is to be coordinated by the NTC PMS(s) (§541.21[a][2]). The collector, insofar as possible, is to complete the information requested on the seed collection envelope (exhibit 542.18) or on form SCS-ECS-580, Plant Collection Information, (exhibit 542.19) and place the completed form in the container with the seed or plants. Seed Sample Envelopes, supply item 190-007, are convenient for collecting, transferring, and storing seed.

(2) National Plant Materials Center. The NPMC serves as the central collection point for all foreign introductions. For the NPMC to be an effective collection facility, field PMC's must provide them with ample lead time to bring the assembly together to meet the PMC project plan timetable. If foreign collections are to be made, at least 2 year's lead time is required. Foreign introductions already in this country require a 1-year lead time. In all circumstances, the PMC manager must specifically request the NPMC to make an assembly, determine at the time of the request whether adequate lead time is available, and provide the NPMC with a cutoff date after which the request is no longer valid.

(3) Plant introduction stations. Regional plant introduction (PI) stations, operated by ARS, are excellent sources of materials. They periodically provide listings of available materials. These listings are to be reviewed as appropriate by PMS's and PMC managers, and the desired introductions are to be requested directly from the regional PI station or from the NPMC. See paragraph (d)(2) of this section.

(4) Other sources. Other state and federal agencies frequently supply materials for specific evaluation purposes and as standards for comparison. Commercial seed dealers and nurserymen, privately endowed foundations, or district seed-increase growers are sources of many released varieties and new strains.

(c) Size of assemblies. An assembly should ideally contain a thorough sampling of genetic and phenotypic populations from throughout the range of native species. An assembly of introduced species should contain as large a number of accessions as is available in this country. There may be instances where additional field collections from foreign sources may be required in order to have an adequate assembly. All released varieties with known adaptation should be included.

(d) Requests for materials.

(1) Native or naturalized plant collections. These collections are to be made on a planned basis for approved projects and coordinated

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with other plant specialists and field personnel. Field collections to be made are identified in the PMC APO, and formal requests are initiated with the concurrence of or by the state conservationist(s) well in advance of the proposed collection date. Collections are made by PMC personnel, plant scientists, or district conservationists, as directed by the state conservationist(s).

(2) Plant introductions. These materials are to be requested by memorandums to the NPMC or regional PI station. Copies of the requests are to be sent to the NTC PMS and PMS by the PMC manager if the requests are made directly to the regional PI station or the NPMC (§541.22[a][3]).

(3) Other domestic sources. Released varieties not readily available on the commercial market and experimental strains can be obtained from experiment stations and from ARS. The PMC manager or PMS is to initiate direct requests for such materials. SCS-released cultivars or plants being evaluated by other PMC's may be requested directly from the producing PMC or requested through the NTC PMS. Copies of the correspondence are to be forwarded to the NTC PMS when requests are made directly to other PMC's.

(e) Accessioning. An accession is plant material (plant, seed, or vegetative part) collected and assigned a number to maintain its identity during evaluation, increase, and storage.

(1) For each accession, a PMC manager completes form SCS-ECS-575, Plant Accessioning Data (PAD), as prime PMC. See exhibits 542.20 and 542.21. The PMC manager retains the second copy and forwards the original and first copies to the NPMC. PAD forms should be submitted only for accessions that have positive identifications of the genus name. Whenever practical, the species should be identified also before the PAD form is submitted. The NPMC is responsible for data entry from PAD forms to the NPMDS.

(2) The NPMC will allocate blocks of nine hundred (900) numbers to field plant materials centers. The field PMC's will assign 900 numbers to new, native collections and commercial non-varietal lots purchased specifically for the purpose of comparative evaluations by or for a specific PMC. Forms SCS-ECS-575 completed for plant materials received from other sources will be forwarded to the NPMC without a 900 number.

(3) The NPMC will assign 900 numbers to those accessions not assigned numbers by the field PMC. Examples of such accessions could be materials received from other agencies, private researchers, named cultivars from seed companies, etc. Accessions with a PI number will not be assigned a 900 number.

(4) The 900 number assigned to an accession is to be used in referring to that accession throughout the evaluation process. Accessions coming into the plant materials program with a PI number will

be identified by that number throughout the evaluation process. Control numbers will not be assigned to new accessions. Control numbers will no longer be used in reports without being accompanied by the 900 or PI number.

(5) When a PMC receives PI materials directly from PI stations, the recipient PMC is to complete an SCS-ECS-575 as a secondary PMC and forward the form to the NPMC for data base listing. The NPMC is the prime PMC for all plant introductions received from the ARS plant introduction system.

(6) Secondary PMC's receiving accessions (having a 900 or PI number) from another PMC are to complete only the accession number, state FIPS code in "Sec PMCST," and date they received material on form SCS-ECS-575 (exhibit 542.20). Submit it to the NPMC.

(7) An accession register is available to PMC managers and others as standard reports NPMDS-1 and NPMDS-2.

§540.16 Evaluations.

(a) Initial evaluations. Initial evaluation is the process of recording the performance of plants under controlled conditions.

(1) Purpose. The purpose of initial evaluation is to observe the characteristics and comparative performance of numerous plant accessions as rapidly as feasible so that promising plants can be selected for additional evaluation. These plantings are made to assess and record the characteristics that plants need for specific or potential conservation uses. Standards for comparison are to be included if available.

(2) Project plans. Initial evaluation activities are conducted according to project plans and supplements, as discussed in §540.14(b).

(i) These activities generally are conducted at the PMC, but occasionally initial testing is done at offcenter field evaluation plantings.

(ii) All plant accessions are to be allowed enough space and time to exhibit their habit of growth and conservation potential. Generally, 15 herbaceous plants or 5 woody plants of an accession are considered the minimum for comparative initial evaluation. Rows ranging from 15 feet to 25 feet long are commonly used for grasses and legumes. Use of small plots may sometimes be warranted, as in the initial evaluation of ground cover plants. Shrubs and trees require space-planting. Spacing in the row and between rows is determined by anticipated growth and the need for uniformity in making observations and carrying out cultural operations.

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(iii) To facilitate comparative evaluation, plant accessions having similar characteristics or plants being evaluated for the same conservation use are to be grouped together.

(iv) Standard plants are to be established in several locations throughout the planting. Guard rows generally are desirable on the borders of initial evaluations.

(v) Some plants will show promise but cannot be advanced immediately in the evaluation program. Procedures can specify how these plants are to be held so that they are available for possible future use.

(3) Documentation. All initial evaluations will be documented and added to the National Plant Materials Data System. Documentation is to be standardized for ease of recording and interpretation and to meet storage and retrieval requirements of automated data processing (ADP) throughout the United States.

(i) Form SCS-ECS-058 (Woody Plant Initial Evaluation) and form SCS-ECS-060 (Herbaceous Plant Initial Evaluation) or a customized format that facilitates data collection and is compatible with the element numbers of the NPMDS will be used. Copies of forms SCS-ECS-058 and SCS-ECS-060 are provided as exhibits 542.22 and 542.24, respectively. Exhibits 542.23 and 542.25 provide instructions for completing these forms. The PMC is responsible for data entry to the NPMDS from these forms.

(ii) Computer printouts of initial evaluation data are available. A narrative summary of the performance of all accessions under test is to be prepared to supplement ADP printouts used in the annual plant materials report.

(4) Selection. Selection is choosing the most desirable accession(s) from the assembly or the most desirable individual plants in an accession to obtain the plant(s) having the best characteristics for a particular conservation use. PMC personnel responsible for conducting the initial evaluation, with assistance of the PMS and other appropriate plant scientists, are to select promising plants for advanced evaluation as warranted. Selection of superior plants is based on observations and quantitative and qualitative data.

(1) Criteria for selection.

(A) The selected accession(s) or plant(s) must be superior to the standard plant in one or more characteristics for the intended conservation use. If no standard is available, selection is to be based on superior performance of the accession(s) or plant(s) in relation to the performance of the other plants being tested in the same group. These selection criteria and plant characteristics are to be documented in the project plan.

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(B) In selecting superior plants and subsequent increase, consideration is to be given to methods of propagation, mode of pollination (such as cross pollination, selfed, or apomictic), seed production potential, and maintenance requirements.

(C) Under certain circumstances it may be beneficial to blend accessions in developing an outstanding cultivar. Justification for combining accessions must be well documented before proceeding.

(ii) Identification. All plants demonstrating potential for advanced evaluation are to be positively identified as to genus, species, and authority for the name.

(A) Questionable plant material from foreign sources is to be reidentified by submitting good pressed plant specimens that are flowering or in a mature stage of growth to the NPMC. The NPMC works through the ARS Plant Taxonomy staff and other plant taxonomists, as needed. Reidentified plant material is to be documented, and the PMC manager is to be notified. The NPMC manager causes the corrections to be made in the NPMDS.

(B) Questionable local collections (native plants or naturalized plants) can be identified by state college or university personnel, or the plants can be submitted to the NPMC in the manner discussed above. The PMC is to keep the NTC PMS informed about specimens sent for identification and the results of the identification.

(iii) Documenting performance.

(A) Information about a plant selected for advanced evaluation is to be prepared by the PMC manager and the PMS. See exhibit 542.26. Documentation includes:

- Scientific name, authority for plant name, and symbol of the plant if the symbol is included in the National List of Scientific Plant Names (NLSPN);
- Plant introduction and 900 number as well as other identifying numbers;
- Common name, if any;
- Origin;
- Method of selection;
- Brief description, including distinctive, outstanding, or limiting characteristics;
- Intended conservation use;
- Probable soil adaptation; and

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-- Where seed or plants are to be maintained.

(B) It is the responsibility of the NTC PMS to distribute copies of the documentation to PMC's and PMS's in his service area, to his counterparts in the other NTC's, and to the national PMS and the manager of the NPMC, who will maintain a permanent national file of the documentation of plants selected for advanced evaluation (see §540.2[m])

(iv) Preservation of plant materials. After initial evaluation of an assembly of the same species of a seed-propagated plant has been completed, consideration should be given to the preservation of the gene base of the collections. This can be done by bulk collection.

(A) Seed samples of all accessions selected for advanced testing are to be sent to the National Seed Storage Laboratory, ARS, Fort Collins, Colorado, through the NPMC. Instructions for submitting seed samples are provided in exhibit 542.27. When field PMC's send a sample of a plant selected for advanced evaluation, a copy of the documentation should be included (540.16[a][4][iii]).

(B) To preserve valuable germplasm, seed samples of materials not selected for advanced testing should also be submitted either as a composite of an assembly or as individual accessions. This can provide for the preservation of a wide gene base for possible future use by SCS or plant scientists of other agencies. Copies of the transmittal letter are to be sent to the NTC PMS and the PMS's in the area served by the submitting PMC. The National Seed Storage Laboratory application form, abbreviated policy statement, and information on quantities of seed desired for storage are shown in exhibit 542.27.

(b) Advanced evaluations. Advanced evaluations consist of intensive testing of plants that were superior in one or more attributes during the initial evaluation. Special studies regarding establishment, management, or production of new or improved plant materials are also conducted under advanced evaluation. The objective is to determine quantitatively and qualitatively how promising new plants or cultural or management techniques may be better than the standards used for comparison.

(1) General.

(i) Advanced evaluation plantings are generally established in randomized replicated rows or plots. These plantings can be conducted at the PMC or at field evaluation planting sites. Procedures are to be followed that will insure confidence in and reliability of the results. Variable treatment levels can be incorporated as needed or to meet the requirements of cooperating agencies.

(ii) Cooperating agricultural experiment stations or other official cooperators are to be encouraged to participate in advanced evaluations.

(iii) As soon as feasible after selection of a plant accession for advanced testing, the manager of the PMC will send packets of planting material of the selected accession to every other PMC within the area of potential climatic adaptation, along with a copy of the 'Documentation of a Plant Selected for Advanced Testing' and instructions on planting the material. The sending PMC will request evaluation of specific plant characteristics such as cold hardiness, seed production, disease resistance, etc., and will provide an estimate of the time period over which these evaluations should be made. The receiving PMC will treat the accession as an 'initial evaluation' and will report performance at least annually to the sending PMC, either by direct entry of evaluation data into the NPMDS or by memorandum, if the receiving PMC requests it, or by both.

(iv) Appropriate steps are to be taken during initial or advanced evaluations to determine whether the plant has any toxic qualities or has potential for becoming a pest. If it is determined that the plant has these qualities, control methods are to be developed and hazards are to be carefully assessed before the plant is considered for release. The PMC manager or the PMS is to arrange for the necessary assistance of cooperating agencies.

(2) Field evaluation plantings. Field evaluation plantings are plot or row plantings of plant accessions or cultural or management studies established off center at locations that represent a land resource area or a site having soil, climate, and other conditions not represented at the PMC. Although initial testing is sometimes conducted at field evaluation plantings, these sites generally are used for advanced evaluations.

(i) Field evaluation plantings generally are the responsibility of the PMC manager. In some cases, however, they may be the responsibility of the PMS. Such factors as location, workload, and available facilities are to be considered in determining who is to be primarily responsible for each field evaluation planting.

(ii) All field evaluation plantings are to be approved by the state conservationist in the state where the planting is made. The state conservationist is to be assured through cooperative agreement, memorandums of understanding, or exchange of correspondence that there is mutual agreement between landowners, SCS, and the conservation district regarding use of, access to, and tenure of the field evaluation planting. The state conservationist is to determine that necessary funds, equipment, and manpower are available.

(iii) The NTC PMS is responsible for providing technical coordination between PMC service areas.

(3) Project plans and supplements. Advanced evaluation activities are conducted according to project plans and supplements as discussed in §540.14(b). The interdisciplinary approach is important in preparing project plans for advanced evaluations. It generally is

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desirable to prepare a separate project plan for studies conducted in field evaluation plantings, but there may be occasions when these studies can be included in other project plans or added to a project plan as a supplement.

(4) Data collection on range plants. To provide production information that is compatible with range data systems, procedures for collecting yield information for range plants are to be prepared jointly with the state range conservationist.

(5) Reports. Reports on advanced evaluations are to be prepared according to instructions provided in part 541, subpart A.

(c) Final evaluations. Final evaluations are conducted as field plantings. Field plantings, a conservation operations activity, are discussed in detail in §540.25.

§540.17 Seed and plant increase.

(a) Procedures for increase.

(1) Isolation requirements. The minimum standards for isolation for foundation seed established by the Association of Official Seed Certifying Agencies are to be used as a basic guide for seed-producing crops. These standards can be supplemented by standards or other requirements imposed by the state seed certifying agency or crop improvement associations.

(2) Location and size. A location is to be selected where optimum care and isolation can be provided. The size of increase plantings varies according to species, amount of seed or clonal material available, and planned evaluations.

(3) Establishment and cultural and management practices. Practices are to be applied that give optimum production of quality seed or other propagules.

(4) Harvesting, cleaning, and storage. Harvesting, cleaning, and storage are to be done by the most practical method to maximize yield, purity, and viability of seed or plants. If methods developed for a species differ significantly from those normally used, they are to be described in the annual report.

(5) Inventory. An inventory of plants and seed produced and of plants and seed on hand is to be maintained as described in §540.18.

(b) Initial increase. Initial increase is the production of small quantities of seed or other propagules of potentially useful plants selected on the basis of initial or advanced evaluation for further evaluation or for exchange with other PMC's or cooperating state and federal agencies.

(1) Instructions for preparing project plans and supplements for initial increase are given in §540.14(b).

(2) The project plan for initial increase is to establish standards for the production of breeder-quality seed or plants. All initial increase plantings are to meet these standards.

(c) Field-scale increase. Field-scale increase is the reproduction of plant materials to be included in field plantings or for use by other PMC's or cooperating state and Federal agencies. The use of plants produced in field-scale increase plantings is discussed in subpart C of this part.

(1) Documentation. At the time material is selected for field increase, the PMC manager, assisted by the PMS, is to initiate a planting guide. See §540.25(c).

(2) Quantity. The PMC manager, the PMS, and the NTC PMS are to determine the quantity to produce in field-scale seed and plant increase on the basis of:

(i) Requests for seed and plants to meet continuing needs.
See §541.12(b).

(ii) Long-range plan for field plantings. See §540.25(b).

(iii) Regional and national needs. The NTC PMS is to summarize all continuing seed and plant requests from PMC's in that service area, as well as those from sources outside the area. He is responsible for advising individual PMC's in his NTC service area about production requirements. Refer to §541.13.

(3) Quality. Field-scale increase plantings are to be established according to the standards to be used in producing foundation-quality seed or plants.

(d) Breeder and foundation increase. PMC's maintain breeder or foundation seed or plants of cultivars that have been cooperatively released, or they arrange with agencies and organizations participating in the release for maintenance. The objective is to maintain viable, genetically pure breeder or foundation seed and plants and to make available to soil conservation district cooperators and crop improvement associations seed and plants for commercial production. SCS will discontinue maintenance of breeder or foundation seed of a cooperatively released cultivar only when it is determined that discontinuing the variety is mutually satisfactory with other interested agencies or organizations. When a new or improved seed-propagated variety is released, breeder seed are to be forwarded to the ARS Seed Storage Laboratory, Fort Collins, Colorado for safekeeping. Larger lots can be safely stored under locally controlled atmospheric conditions. Vegetatively propagated materials are to be maintained locally. Instructions for submitting seed samples are provided in exhibit 542.27.

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(1) Agreement of Experiment Station Committee on Organization and Policy (ESCOP). This policy statement was prepared by the Experiment Station Committee on Organization and Policy, ARS, and SCS. It deals with seed-propagated cultivars and outlines the responsibilities for the development, release, and multiplication of publicly released cultivars. A copy of the ESCOP agreement is provided as exhibit 542.1. SCS uses this agreement as a guideline in testing and releasing seed-propagated plant materials.

(2) Crop improvement associations.

(i) SCS cooperates with crop improvement associations in establishing standards and meeting state and national requirements in the production and handling of recognized seed classes (breeder, foundation, registered, and certified) with respect to: source of seed stocks; genetic purity; isolation requirements; roguing other crop or weed contaminants; field inspection; seed cleaning; and seed quality, purity, and germination.

(ii) See exhibit 542.28 for suggestions concerning the maintenance of breeder and foundation seed, including reconstitution of breeder seed.

(iii) The basic requirements for certified production of many crops are found in the Certification Handbook published by the Association of Official Seed Certifying Agencies (AOSCA). State certification standards are individually established within these guidelines.

(3) Reconstitution of breeder seed. Breeder seed are to be reconstituted, as required, to maintain and produce adequate quantities of viable material. The needs and seed storage characteristics of individual species are to be considered. See exhibit 542.28.

(4) PMC manager's responsibility. The PMC manager is responsible for planning, producing, testing, maintaining, and shipping all classes of seed and plants according to state and Federal regulations.

(5) Inventory. An accurate inventory is to be kept on breeder and foundation seed and plants as outlined in §540.18.

(6) Project plans and supplements. Project plans and supplements are to be prepared for breeder and foundation increase according to instructions provided in §540.14(b). Project plans are to be based on the requests for seed and plants to meet continuing needs, as outlined in §541.12(b).

(7) Allocation and distribution. Allocation of breeder or foundation seed or plants for the purpose of additional increase can be made to soil conservation district cooperators through the usual SCS channels and the conservation district governing board. Distribution can also be made through crop improvement associations or other cooperating agencies participating in the release. These associations and

agencies will in turn make allocations to their cooperators. Agreements with such associations can provide more specific guidelines on the allocation and distribution of breeder or foundation seed or stock. Additional instructions for the allocation and distribution of breeder and foundation material are provided in §540.19(i) and 541.12(b).

(e) Special increase. SCS can produce plant materials in the quantity required for a specific conservation job if it is in the interest of the public welfare and when plant materials from commercial production are not available in dependable supply. Such special increase continues only until the plant materials are available commercially. Special production of plant materials by SCS requires approval of the Chief and may require financial assistance for SCS or the transfer of funds within ongoing SCS operations.

§540.18 Inventory.

(a) All classes of seed and plants produced at PMC's, obtained through exchange, or purchased with federal monies are government property. Form SCS-ECS-581, Inventory and Allocation of Plant Materials (exhibit 542.29), or the PMC/250 inventory program are to be used for inventory and stock control for herbaceous seed in excess of 10 pounds, woody seed in excess of 2 pounds, and plants in excess of 25. Inventories are the responsibility of the PMC manager.

(b) Small lots of unallocated seed of any class may be blended. Caution, however, must be used to insure that they are adequately blended and are retested for germination and purity. If the blended lot is not retested, purity and germination data from the poorest lot included in the blend are to be used for the entire blend. When lots are blended, the word "blend" is to be entered on the seed tag in the space provided for year of harvest. The PMC manager is to establish procedures for maintaining an inventory of small lots of seed (less than 10 pounds herbaceous or 2 pounds woody) or planting stock not addressed in paragraph (a) above.

(c) The PMC manager is to make a physical inventory of seed and plants each year. These inventories and information on estimated production serve as a basis for allocating plant materials, as discussed in §541.13.

§540.19 Release of new plant materials.

(a) Cooperative release of superior plants.

(1) In releasing superior plant materials of proven conservation value, SCS is to be guided by state and federal regulations and the ESCOP agreement. Insofar as possible, superior material is released in cooperation with or with concurrence of cooperating agencies. Before SCS proposes a plant for release, adequate evaluations are conducted to

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determine its potential area of adaptation and its superiority over other plants currently available. Data accumulated from initial and advanced evaluations and through field plantings can be used for documentation. The number of plantings and the type of evaluations needed to determine the area of adaptation and to show plant superiority vary according to the species and conservation use. SCS, in consultation with cooperators, will determine the data required for cooperative release early in the evaluation process. A thorough review will be made well in advance of the anticipated release date to insure that the information is available or that appropriate steps can be taken to obtain it. The type of data needed to support a recommended release is shown in exhibit 542.30. The cooperative release of superior plants discussed in this paragraph also applies to germplasm release as discussed in §540.19(a)(4).

(2) Interested agencies in potential-use areas will be provided information about candidate releases and be given an opportunity to test them when they are selected for field plantings. They are to be kept informed of performance data and intention to release. Cooperating agencies from other states can be invited to join in a release. The decision rests with the state conservationists' advisory committee and the cooperating agencies.

(3) Initial distribution of planting materials to commercial producers will be done on an equitable basis considering requests from qualified potential producers and the needs of SCS and cooperating agencies. If it is necessary to determine whether a potential release can more appropriately be produced in a climatic area other than that represented by the primary PMC, a production trial should be conducted at a PMC in the desired climatic area. If this is not practical, arrangements can be made with others, such as experiment stations or commercial producers, to conduct the trial on their property. Such an arrangement should include a written requirement that the planting will be destroyed after the trial is completed and before the plant is released. This is the only circumstance under which planting materials are made available to commercial producers until after the release is finalized.

(4) A germplasm release refers to basic genetic plant material possessing one or more potentially desirable characteristics that may be of value in plant breeding, the release of which is in the best interests of United States agriculture and the state or agency research program. A germplasm release consists of basic genetic materials and should generally be provided to all plant breeders who request it.

(b) Procedure.

(1) Documentation of performance.

(i) Performance is to be documented as required for the release of the plant and by using methods acceptable to cooperating

agencies. Such techniques may require multiple plantings and randomized plot replications.

(ii) Identification of superior characteristics based on actual measurement of growth, forage and seed production, and qualitative analysis of the forage should also be recorded. Statistically analyzed data are desired where applicable. The type of data needed to support a recommended release is shown in exhibit 542.30.

(iii) Each new or improved variety is to be described and characterized in enough detail to record its distinguishing features and set it apart from common or other similar varieties, i.e., vigor, height, leafiness, color, hardness, pubescence, disease resistance, lignin, or other features. Such descriptions are a key to the recognition of the variety and maintenance of breeder seed.

(2) Certification standards. Plants or seed intended for certification are to be produced according to standards established by the agencies cooperating in the release and the certifying agencies. The PMC manager; the PMS; the NTC PMS; and the cooperating agencies, such as experiment stations and crop improvement associations, are to prepare specific certification guidelines for plants for which certification standards have not been established.

(3) Responsibilities.

(i) PMC manager.

(A) The PMC manager, assisted by state and NTC plant scientists and cooperating agencies or organizations, is responsible for summarizing basic data and for preparing information supporting release and registration. The information is to include photographs and supporting data documenting the superiority of the plant material over existing material or for a specific conservation use. After the information is prepared, the PMC manager or the PMS is to circulate the draft to appropriate SCS plant scientists and cooperating agencies and organizations for their review before presenting it to the certifying agency or to the review board.

(B) The PMC manager is to mount three botanical specimens. One is submitted to the NPMC and deposited in the Herbarium of the National Arboretum. The second mount is given to a locally designated herbarium, and the third is retained by the PMC.

(ii) Plant materials specialist. The PMS assists in summarizing data and works with cooperating agencies and organizations for the release of new plant materials.

(iii) NTC plant materials specialist. The NTC PMS reviews and concurs in proposals for release and arranges for clearance on the

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national level. A summary of the documentation used for release purposes is to be distributed through the NTC PMS(s) to appropriate PMS's, PMC managers, and interested agencies or organizations.

(c) Naming new releases.

(1) Procedure. Improved cultivars are named at the time of release and appropriate publicity and credit are given to cooperators and the originating source of the materials. Cultivar names are to be selected according to guidelines provided in the International Code of Nomenclature for Cultivated Plants and the provisions of the ESCOP Agreement (exhibit 542.1). Names are to be short, of not more than three syllables, and easy to spell and pronounce. The selected name should be acceptable to the agencies and organizations cooperating in the release.

(2) Name clearance. The name, along with brief descriptive material, is submitted through the NTC PMS to the NPMC, which arranges for clearance with:

- (i) The USDA Agricultural Marketing Service, Seed Regulatory Branch;
- (ii) ARS Plant Taxonomy Laboratory;
- (iii) USDA Plant Variety Protection Office;
- (iv) The U.S. Plant Patent Office, Trademarks Division; and
- (v) Other appropriate national review boards.

(3) Storage of seed. A packet of breeder seed is to be sent to the National Seed Storage Laboratory, ARS, Fort Collins, Colorado, through the NPMC. See exhibit 542.27 for procedures.

(d) Notice of release.

(1) The PMC manager and the PMS are to prepare a brief notice of release describing the plant, its use and area of adaptation, and how and by whom breeder and foundation material are to be maintained. In addition, the notice is to specify when and where foundation seed will be available and when the plant is expected to be available commercially. The notice is to be reviewed by cooperating agencies and organizations. For plants that are to be certified, the notice of release generally is prepared after certification requirements have been determined. Exhibit 542.31 is a typical release notice.

(2) The amount of breeder or foundation seed or stock needed to meet increase for commercial purposes is to be determined by SCS and the cooperating agencies and is to be on inventory prior to the release of the improved cultivar.

(3) The notice of release is to be signed by the state conservationist(s), the Director of Ecological Sciences, and the appropriate personnel of the cooperating agencies. The state conservationist of the originating PMC is responsible for distributing the document for signatures and for distributing signed copies to all signatories.

(4) Instructions for providing information to the news media are provided in paragraph (h) of this section.

(e) Variety review boards or committees. If required by the cooperating agencies, the data documenting the superior performance and the reasons for release of improved cultivars are to be presented to the appropriate state and national variety review board or committee. Procedures for submitting these data are outlined in the Certification Handbook, which was published by the Association of Official Seed Certifying Agencies (AOSCA) in June 1971.

(f) Registration. An improved cultivar can be registered where procedures have been established for the species.

(1) Procedures for registering herbaceous plants. Most SCS-released cultivars of herbaceous plants can be registered with the Crop Science Society of America (CSSA). Application for registration is to be made concurrently with the release.

(i) Application is made on a form provided by the subcommittee chairperson of CSSA responsible for registering the crop.

(ii) National Instruction WO 260-305 and National Management Instruction 51-305, Amendment 1, Subpart B; F-3 provide guidance for manuscript preparation and clearance. The PMC manager is to complete the application form and submit it, along with a short descriptive registration article, through channels to the Director of Public Information in the National Headquarters for review and clearance.

(iii) The registration article is to be prepared according to the requirements of CSSA and the handbook and style manuals for CSSA, Agronomy Society of America (ASA), and Soil Science Society of America (SSA) publications. It is to be concise and is to include the following about the cultivar:

- Name or identification assigned at the time of release;
- Botanical name, including the author of the binomials;
- Experimental number or designation used during development;
- Names of agencies and organizations that participated in the development and evaluation of the plant;

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- A brief description, including distinguishing characteristics and breeding procedures;
- Probable region of adaptation, generations of seed increase, and area of seed production, where applicable;
- The institution or organization that is to maintain basic stocks of the plant materials; and
- Any limitations on the availability of parental lines or elite germplasm.

(iv) Unless essential to the description of the plant materials, tables of comparative performance data are not included in the registration article. However, data from public and private evaluation tests are included with the application to aid in establishing eligibility for registration.

(v) An application form and a registration article are shown in exhibits 542.33 and 542.34.

(vi) The approved application form and registration article are to be forwarded to the chairperson of the appropriate CSSA subcommittee. A list of the crop subcommittees is published annually in the January-February issue of Crop Science.

(2) Procedures for registering woody plants. In most states there are no procedures for registering woody plant releases other than through the plant patent. If registration procedures are available, they are to be followed. SCS does not generally patent its plant materials releases. See exhibit 542.32

(i) The following recommended procedures for documenting the release of woody plants are applicable:

- Prepare a notice of release, as indicated in paragraph (d) of this section; and
- Submit a popular-type release story, along with appropriate photographs, to publications familiar with or interested in the cultivar.

(ii) Articles about nursery-produced plants are to be submitted to the American Nurseryman. See exhibit 542.34 for an example of a registration article, exhibit 542.35 for an example of a popular-style writeup about release of new woody plant varieties, and exhibit 542.36 for a list of other nursery trade publications.

(g) Plant Variety Protection Act

(1) SCS is not to encourage cooperating agencies to grant exclusive production rights for seed or plants of SCS cooperatively released

plant materials. If a cooperating agency wishes to grant exclusive production rights, it is to take the lead in this activity. A cooperating agency may apply for a certificate for plant variety protection under the Plant Variety Protection Act. The notice of release and registration is to indicate that the action is mutually agreeable and that foundation seed will be available only from the cooperating agency.

(2) SCS may, upon its own initiative, seek protection under the Plant Variety Protection Act for plant releases upon which SCS is the lead release agency, but only to the extent that seeds (or plants) of lesser proven quality than certified (select) may be barred from being sold under the varietal name. SCS will not grant exclusive production rights.

(3) Additional information about the Plant Variety Protection Act is provided in the U.S. Plant Protection Act of December 24, 1970, and in Procedures for Processing Variety Protection Applications, July 1, 1974.

(h) Publicity about newly released cultivars.

(1) The PMC manager and the PMS are to prepare a national popular-type publication for each new plant release in which SCS participates. They are also responsible for a long-range plan for preparing news articles about a new plant from its release through its use in conservation programs. The help of state information specialists and NTC PMS's is to be sought in preparing public information material and proposing outlets. Public information material on new releases is to state when seed will be commercially available.

(2) Popular type news releases and publications may be delayed following plant release until such time as the material is commercially available.

(3) Additional publicity can be obtained through:

- (i) Advisory notices, plant guides, and local articles;
- (ii) Soil conservation districts and commercial growers; and
- (iii) Articles in journals and periodicals.

(i) Commercial increase.

(1) Purpose. The purpose of commercial increase is to make released plant materials available for conservation uses. Arrangements for commercial increase are to be formulated during the release process.

(2) Producers. SCS releases can be provided to commercial growers through:

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(i) Certifying agencies. Certifying agencies can be provided with quantities of breeder or foundation seed or plants. The certifying agencies in turn allocate this material to their cooperators. The manner of allocation, selection of producers, and other details are influenced by existing agreements with the certifying agencies (§540.17[d]).

(ii) District seed or plant increase. Foundation-quality plant materials can be provided to conservation districts to establish seed fields or orchards to produce plants. Agreements with certifying agencies influence how certified cultivars are to be provided. Generally, conservation district and SCS representatives select the producers (§540.25[f]).

Subpart C - Conservation Operations

SUBPART C - CONSERVATION OPERATIONS PHASE
OF THE PLANT MATERIALS PROGRAM

540.20(a)(11)

§540.20 Responsibilities.

(a) State conservationist. Each state conservationist, assisted by the staff, administers the plant materials work in the state. Duties of the state conservationist include:

(1) Formulating state plant materials supplements to the National Plant Materials Manual;

(2) Preparing for the state a long-range plant materials program that identifies needs and establishes priorities consistent with National Conservation Program objectives;

(3) Serving on the state conservationists' PMC advisory committee, as appointed by the Chief;

(4) Working with other institutions and agencies for such purposes as developing interagency agreements and memorandums of understanding;

(5) Informing district governing bodies, their associations, and the public of plant materials work;

(6) Assisting with functional appraisals of the PMC and initiating functional appraisals of field plant materials work in the state, according to policy established in General Manual Title 330-404 (see exhibit 542.37 for a suggested outline of the major items to be considered in conducting a functional appraisal of state plant materials activities);

(7) Training the SCS staff in plant materials activities;

(8) Providing information to districts about sources of seed or plants;

(9) Appointing a state plant materials committee;

(10) Considering the need for and establishing area plant materials committees, if such committees are determined to be advantageous; and

(11) Reviewing and concurring in plans developed by a PMC in an adjacent state when such plans involve significant work in MLRA's in the state.

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(190-V-NPMM, August 1984)

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540.20(b)

(b) State resource conservationist. As directed by the state conservationist, the state resource conservationist generally is responsible for overall technical supervision and coordination of the state plant materials program. Duties of the state resource conservationist include:

- (1) Supervising the PMS and the PMC manager;
- (2) Directing the work of state plant scientists in their assigned plant materials duties;
- (3) Incorporating into technical guides the most recent information available on improved plant materials, cultural techniques, and management methods;
- (4) Providing leadership for the vegetative aspects of conservation field trials;
- (5) Serving as chairperson of the state plant materials committee;
- (6) Providing staff assistance to the state conservationists' advisory committee; and
- (7) Coordinating multistate project plans approved by the state conservationists with the NTC PMC (see §540.20[a][11]).

(c) Plant materials specialist. The PMS is a member of the state technical support staff in each state he serves; a PMS generally serves two or more states (exhibit 542.38). Duties of the PMS include:

- (1) Giving specific technical leadership to the state's plant materials program;
- (2) Determining plant materials needs;
- (3) Providing assistance in preparing the state long-range plant materials program;
- (4) Providing assistance in preparing the PMC long-range program;
- (5) Giving technical guidance to the PMC manager;
- (6) Serving as member of and advisor to the state plant materials committee;
- (7) Giving technical leadership in establishing and evaluating field plantings and seed plant increase fields;
- (8) Providing leadership for the commercial increase of released cultivars;

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(9) Gathering and reporting performance information about plant materials and cultural and management methods;

(10) Helping to prepare technical material, including standards and specifications;

(11) Giving training pertinent to plant materials;

(12) Maintaining a working relationship with experiment stations, crop improvement associations, seed dealers, and conservation districts concerning production, certification, and movement of superior plant materials into commercial channels;

(13) Preparing technical releases; and

(14) Participating in information and education activities.

(d) Area conservationist. Duties of the area conservationist include:

(1) Directing the area's plant materials program activities, including organizing the area plant materials committee as directed;

(2) Identifying the needs for new plant materials or methods and informing the state plant materials committee of these needs;

(3) Participating in locating sites for field plantings and conservation field trials in the area;

(4) Developing necessary areawide controls to insure proper establishment, protection, timely evaluation, and adequate documentation of field plantings in the area;

(5) As directed by the state conservationist, arranging for the collection of needed plant materials in his administrative area; and

(6) Serving, as assigned, on the state plant materials committee.

(e) District conservationist. Duties of the district conservationist include:

(1) Directing the field office's plant materials program activities;

(2) Identifying plant materials needs and bringing them to the attention of the area conservationist or of a member of the state plant materials committee;

(3) Working with the PMS and other plant scientists in locating sites for field plantings;

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(4) Making arrangements for establishing field plantings, preparing field planting plans (exhibit 542.39), providing needed onsite assistance during planting, and making evaluation and proper documentation of field plantings in the conservation district(s) served by the field office;

(5) Keeping the conservation district governing board informed about developments in plant materials;

(6) Promoting the commercial production of released plant materials;

(7) Encouraging use of improved plant materials through information and education activities and contacts with cooperators;

(8) Using up-to-date plant materials guidance provided in the field office technical guide and technical notes;

(9) As instructed by the area conservationist or state conservationist, arranging for the collection of needed plant materials; and

(10) Serving, as assigned, on the state plant materials committee or area plant materials committee.

§540.21 Conservation districts.

State conservation agencies and organizations and conservation district governing bodies are to be informed about the SCS plant materials program and how it is conducted. It is the responsibility of state, area, and district conservationists to keep conservation leaders informed about the SCS plant materials program. Particular emphasis is to be given to the role played by improved plant materials in meeting soil, water, and related resource conservation objectives and to the influence and impact these plants have on all conservation activities. Conservation districts are in a unique position to encourage the use of improved plant materials through their direct relationships with cooperators and their contact with farmer and rancher organizations, crop improvement associations, land-grant universities, state experiment stations, and other agencies and organizations. Conservation district leaders are to be invited to participate, as determined by the state conservationist, in preparing SCS long-range plans for plant materials work and PMC operations. The assistance of conservation district governing bodies is to be sought in locating cooperators well suited to and having land suitable for field plantings, seed and vegetative material production, and conservation field trials.

§540.22 State long-range plant materials program.

(a) Each state conservationist, assisted by his staff, is responsible for preparing and keeping current a long-range plant materials program for the state.

(b) The state long-range plant materials program is to identify major plant materials problems and needs by land use, land resource area, and conservation practice and assign priorities to these problems and needs consistent with RCA National Conservation Program objectives for that state. Procedures for correlating plant materials problems with National Conservation Program objectives are described in exhibit 542.11.

(c) The long-range program does not need to include detailed descriptions of major land resource areas but can include a general discussion of land uses, climate, and conservation needs.

(d) The long-range program is to be in sufficient detail to guide the preparation of a long-range program for the PMC serving the state as well as all plant materials activities in the state. Proposed actions to help solve high-priority needs are to be included.

\$540.23 Area plant materials committee.

Area plant materials committees are providing effective assistance in some states. They may be established by the state conservationist. Duties of the area plant materials committee include: suggesting problems that should be studied, assisting the area conservationist and district conservationists with evaluations, recommending needed plant materials training, and informing other area staff members of progress with new plants.

\$540.24 State plant materials committee.

(a) Each state is to have a plant materials committee consisting of representatives of the various technical fields and others designated by the state conservationist.

(b) The state plant materials committee is to make recommendations to the state conservationist regarding all plant materials activities in the state.

(c) The committee is appointed by the state conservationist. The state resource conservationist usually is chairperson. The PMC representative to the state is a member and provides technical assistance as an adviser to the committee. Other members usually include the sciences support staff, area and district conservationists and specialists, who usually serve on a rotational basis. The state conservationist may wish to invite members of the ARS and state agricultural experiment station advisers to the committee.

(d) The state plant materials committee meets each year to assist in developing plans for the following year. The state plan

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540.24(d)(1)

- (1) Review state plant materials supplements and recommend needed revisions to the state conservationist;
- (2) Review the state long-range program for plant materials and recommend to the state conservationist revisions or suggestions for carrying it out;
- (3) Review the long-range program of the PMC(s) serving the state and recommend changes in needs and priorities for consideration by the state conservationists' PMC advisory committee. Specific action items, such as plant assemblies and special studies or summaries to achieve the high-priority objectives, are to be recommended for inclusion in the PMC long-range program;
- (4) Review the current annual PMS report on field plantings and seed and plant increase and recommend distribution of the report;
- (5) Review and concur in long-range plans for field plantings of new plants or methods selected for field plantings in the state, including final determination of need for field plantings and the location of the plantings (§540.25);
- (6) Analyze existing field plantings and determine the need for additional adaptation and performance information;
- (7) Review planting guides and recommend modifications or revisions;
- (8) Prepare an annual plan or supplement(s) for field plantings for plant materials, seed and plant increase, and special plantings. The annual plan or supplement(s) is to be based on long-range plans for field plantings (§540.25[b]).
- (9) Recommend plantings to be made with cooperating agencies;
- (10) Assist in arranging annual and long-term schedules for seed and plant increase and recommend the kind, acreage, and location of needed increase plantings;
- (11) Recommend to the state resource conservationist data for inclusion in technical guides and provide information about proven plants and techniques for technical guides. The committee recommends and may assist with the development of conservation plant sheets, technical notes, job sheets, and other publications needed to facilitate use of new materials or techniques or to transfer technology on existing plants for other conservation programs;
- (12) Determine the need for members of the committee to schedule specific plant materials activities related to their respective technical fields;
- (13) Recommend training needs and activities to the state training committee;

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(14) Consider the need for conservation field trials and recommend to the state conservationist those that will confirm or demonstrate to the appropriate clientele the value of improved plant materials or cultural techniques for solving specific conservation problems;

(15) Consider SCS personnel or field offices or others that should receive special recognition for effectively using improved plant materials and recommend them to the state conservationist;

(16) Determine the need for meetings and tours to inform and encourage seed growers and dealers, nurserymen, mining companies, state highway departments, and rancher and farmer groups to grow, sell, and use improved plant materials;

(17) Determine the need for developing a list of producers and dealers selling conservation plant materials;

(18) Consider the need for an information program to publicize released plant materials from time of release through actual conservation use;

(19) Determine when a higher level of cost sharing is warranted from the state Great Plains Conservation Program or the Agricultural Conservation Program for use of named cultivars and make recommendations accordingly to the state conservationist.

§540.25 Field plantings.

(a) General.

(1) Field plantings are the final evaluation of promising new or unproven plant materials or cultural and management methods to assess the conservation potential of the plants or methods under actual use conditions, in comparison with those of standard varieties and methods, under a variety of soil, climatic, and land uses. The state plant materials committee is to determine the need and location of field plantings. Field plantings are to be made on soils or sites where there is a need for specific information about the adaptation or comparative performance of a plant or cultural or management method. Field plantings also provide an appropriate means of testing released materials for new uses or in new areas where adaptation is not known.

(2) Field plantings are to be of a size that permits normal use and management within the framework of the conservation plan.

(3) Detailed establishment, performance, and management records be kept according to the long-range plan technique.

(4) Each field planting will be identified by a unique number. The planting plan number will be

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indicating the state in which the planting is located, two numerals indicating the calendar year of establishment, and two additional numerals identifying the individual planting. The last two digits are assigned in numerical order to the plantings within a state for each year. For instance, C08409 means the planting was made in Colorado in 1984 and was the ninth planting made in Colorado in 1984. Obviously, this numbering sequence is based on the assumption that no state will be making more than 99 plantings in any calendar year.

(b) Long-range plan for field plantings.

(1) Purpose. When a plant shows adequate potential to warrant its evaluation in field plantings, a long-range plan is prepared for its orderly evaluation. The purpose of the plan is to serve as a long-range schedule of field plantings for each specific conservation use for which the accession or technique has potential use. The plan is initiated by the PMS first placing the plant in field plantings, or the plan may be initiated by the NTC PMS. It is to provide guidance on the approximate number, general location, timing, and duration of field plantings; standard for comparison; field-scale increase at a PMC(s); and specific evaluations needed to determine the value, adaptation, and comparative performance of the plant or method for solving a particular conservation problem. The evaluation element numbers will be included in the long-range plan for each conservation use for which the plant is being evaluated.

(2) Preparation. Most, if not all, accessions or methods selected for field plantings are suited for use in several states served by more than one PMS. To determine this suitability, the NTC PMS will circulate the plan to other PMS's in his service area and solicit their recommendations for plantings. A planting guide will be prepared as discussed in paragraph (c) of this section and circulated with the draft long-range plan. The part of the plan applying to each state is to be reviewed, revised, or supplemented by the individual state plant materials committee. All proposed additions or deletions will be returned to the originating NTC PMS who will summarize all proposed plantings and other corrections into a final copy and return it to the states served and the other NTC PMS's for distribution to those states involved in establishing plantings. A minimum distribution of each long-range plan will be made to the members of the state plant materials committee and to the area and district conservationist who will be responsible for establishing plantings scheduled in the plan.

(3) Revision. The NTC PMS is responsible for maintaining and distributing updated long-range plans for field plantings. Additions and deletions proposed by the states will be included in the revisions, and the current long-range plans will form the basis for the field planting part of the continuing inventory of seed and plant needs.

(4) Additional plantings. In addition to plantings scheduled in the long-range field planting plan, district conservationists can submit

requests for field plantings(s) by completing a planting plan and submitting it through appropriate channels to the state resource conservationist. All such requests are to be considered by the state plant materials committee based upon availability of plant materials and the usefulness of the field planting. These plantings will follow the guidelines of the long-range plan for field plantings and the planting guide.

(c) Planting guide.

(1) A planting guide is to be prepared jointly by the PMS, assisted by the PMC manager, for each plant or cultural technique or management method to be evaluated in field planting(s) (see exhibit 542.41 for an example of a planting guide). The guide is to be reviewed and approved by the state plant materials committee in each state where the plant is to be used at the time the long-range plan for field plantings is circulated. The planting guide will become an attachment to the long-range plan (paragraph [b] of this section).

(2) The planting guide is to include a description of the plant or method, suggested potential uses, potential areas of adaptation, soil adaptation, planting and maintenance procedures based on the appropriate conservation practice standards and specifications, and any related information about the plant or method that might have bearing on its value and use.

(3) The planting guide is to be disseminated as follows:

(i) Through the NTC PMS to PMC's and PMS's in his service area and to other NTC PMS's, the national PMS, and the manager of the NPMC, who will maintain a national file of planting guides (§540.2[m]);

(ii) Through the state resource conservationist(s) to all field offices where the plant has potential use;

(iii) Through the state conservationist to interested cooperating agencies;

(iv) Through the district conservationist to the district cooperator(s) establishing a field planting;

(v) As an attachment to the long-range plan for field plantings; and

(vi) With the SCS-ECS-009, 010, or 011 when a field planting is to be established.

(d) Annual plant materials plan or supplement(s) for field, special, and increase plantings.

(1) The state plant materials committee is to prepare an annual state plant materials plan or supplement(s) to the existing plans.

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The PMS is to have primary staff leadership for this activity. The annual plan or supplement is prepared by using: the long-range plan for field plantings (paragraph [b] of this section), the allocation of seed and plants by the NTC PMS (§541.13), the annual PMS report (§541.1), requests received from the field, and the need for seed or plant increase.

(2) Requests made by field offices are to be reviewed by the committee for their consistency with the long-range plan for that plant or method.

(3) The annual plan or supplement(s) is to provide the following information to appropriate field offices and other appropriate personnel:

(i) Field plantings. Field plantings scheduled on the basis of existing or new long-range plans for field plantings (paragraph [b] of this section), the amount of plant materials to be supplied to selected field offices, and the names of cooperators, if known.

(ii) Seed and plant increase plantings. Scheduled seed or plant increase plantings to be made, size and location of plantings, and names of cooperators.

(iii) Special plantings. Approved special plantings (§540.26).

(iv) Field plantings to be evaluated. Active field plantings to be evaluated during the year and the plant scientist, if any, who is to assist the district conservationist.

(v) Inactive and terminated plantings. Field plantings to be placed on the inactive list as a result of the previous year's evaluation. Field plantings to be terminated (paragraph [i] of this section) should also be included (see §541.1[a], PMS report).

(4) The annual plan or supplement(s) generally is distributed to all field offices well in advance of the planting season.

(e) Selection of district cooperators and request for field, special and increase plantings.

(1) The district conservationist, assisted by the conservation district board and plant scientists as appropriate, is to determine the general area where the planting is to be made. Specific guidance is provided in the long-range planting plan and in planting guides.

(2) Cooperators should be knowledgeable about plants and should be practicing good management on their operating units. They should be fully aware of the purpose of the planting, the intended use, and the potential for improving their conservation operations. In addition,

cooperators should be willing to provide equipment for seedbed preparation and planting and to work with the district conservationist and his staff to insure the accurate records of observations are maintained.

(3) Cooperators are to be informed that they are not to harvest seed or plants evaluated in field plantings for commercial increase or sale without receiving authorization from the District Board and SCS. See §540.19(a)(3) for additional information.

(4) After the district cooperator and site have been selected, the appropriate district conservationist is to prepare and submit form SCS-ECS-009, Planting Plan for Field, Special, and Increase Plantings (exhibit 542.39), well in advance of the planting date. Usually, requests for increase plantings must be handled separately from the annual plan for field and special plantings. This is discussed in greater detail in §540.27. The district conservationist retains the last copy of form SCS-ECS-009 until the plan is approved. The other copies of the planting plan are submitted through channels for approval by the state resource conservationist or the PMS, as determined by the state resource conservationist. When form SCS-ECS-009 is approved, the PMS retains the original and returns the other copies through channels to the district conservationist with two planting guides for each accession. The area conservationist can retain a copy of the planting plan as necessary.

(5) The PMS issues shipping instructions to the appropriate PMC by submitting either form SCS-ECS-001, Plant Materials Allocation and Distribution (exhibit 542.42), or a copy of the planting plan.

(f) Recording transfer of materials to conservation districts.

(1) When plant materials are transferred from SCS to a conservation district, the action is to be recorded on form SCS-ADS-308, District Receipt for SCS Materials (exhibit 542.51), which is maintained in the field office file.

(2) An authorized representative of the district governing board is to acknowledge receipt of this material on form SCS-ADS-308.

(3) When plant materials are transferred from a conservation district to a cooperator, the action is to be recorded in a manner considered appropriate by the district governing board. One recommended method is to record the action in the minutes of the conservation district board meeting.

(g) Return of unused materials. The district conservationist must account for unused plant materials by one of the following methods:

(1) Preparing and having approved a new planting plan for another qualified operator;

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(2) As authorized by the PMS, surveying according to administrative procedures; or

(3) As requested by the PMC manager or the PMS, returning the material to the PMC.

(h) Assistance to cooperators during seeding or planting. The district conservationist or a member of the staff is to hand deliver the seed or plants to the district cooperator and, assisted by the PMS or other plant scientist as requested, is to help the cooperator during seeding or planting operations to insure that the planting plan is followed. Information is to be recorded on the first part of the appropriate field planting evaluation form as the operations progress. Followup assistance is to be provided according to the procedure outlined in paragraph (i) of this section.

(i) Evaluation of field planting.

(1) Responsibility.

(i) The PMS sends the district conservationist the appropriate evaluation form(s) (SCS-ECS-010, Evaluation of Woody Field Plantings, exhibit 542.43, or Form SCS-ECS-011, Evaluation of Herbaceous Field Plantings, exhibit 542.45), according to procedures established in the state. The forms will identify the evaluations to be made as outlined in the long-range plan for field plantings. Ideally, the evaluation forms are provided for new plantings when the approved planting plan is returned to the district conservationist. For previously established plantings, evaluation forms should be provided well in advance of the time the first evaluation is to be made.

(ii) The district conservationist is responsible for recording accurate and timely observations about all field plantings. The success or failure of planting often depends upon the ability of the district conservationist to work closely with the district cooperator in recording timely and pertinent information about the plant(s) being evaluated.

(iii) If special evaluations are needed or if problems arise, the district conservationist is to request the assistance of a member of the state or area plant sciences support staff.

(2) Procedure.

(i) All plantings scheduled to be evaluated during the year are to be listed in the state's annual plant materials plan or supplement(s). The area conservationist is responsible for establishing a control procedure to insure that all scheduled plantings are evaluated and documented. If a state does not have an area conservationist, the state resource conservationist is to establish the control procedure.

(ii) The district conservationist records information about woody plants on form SCS-ECS-010, Evaluation of Woody Field Plantings, or computer-generated forms. The DC records information about herbaceous plants on form SCS-ECS-011, Evaluation of Herbaceous Field Plantings, or computer-generated forms. These forms and instructions for their completion are shown in exhibits 542.43, 542.44, 542.45 and 542.46.

(iii) The district conservationist is responsible for accurately recording the information requested by the PMS on the appropriate form. Entries are to be made at the proper time to insure that adequate information is recorded.

(iv) At the end of the growing season, the district conservationist attaches a copy of the evaluation form to the planting plan, which is to be filed in the field office, then forwards the original and first copy through the area conservationist to the SRC. The PMS reviews the forms for accuracy and completeness and is responsible for data entry to the NPMDS.

(j) Status of field plantings. Field plantings may be classified according to the following:

(1) Active. An active field planting is one that is expected to provide additional information on the adaptation or comparative performance of the plant or the value of the cultural or management method being evaluated and for which periodic evaluations are to be continued.

(2) Inactive. Periodic evaluations will not be required for inactive field plantings. Because of their location or demonstrational value or for other reasons, records relating to these plantings will be maintained indefinitely in the field office PM file, and follow-up evaluations may be made of selected species and/or accessions at the request of the state plant materials committee.

(3) Terminated. If a field planting has been destroyed or has no evaluation or demonstrational value, the district conservationist is to recommend that it be terminated, and the records pertaining to it are to be closed.

\$540.26 Special plantings.

(a) Once a decision has been made to release a new conservation plant, consideration should be given to an organized approach to promote its widespread acceptance and use. To accomplish this, PMS's working within the plant's proven area of adaptation should encourage the state plant materials committee(s) to develop a list of needed special plantings for each state. Lists should show the number of plantings, the plant materials needed per year, and the time period in which the plantings are to be made.

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(b) Seed and plants needed to fulfill long-range plans for field plantings or for commercial increase will have priority over special plantings. The state conservationists' advisory committee will determine what portion of seed or plants in excess of these needs will be used for special plantings, or if additional production is needed. Commercial seed or plants can also be purchased by states for use in special plantings.

(c) Based on available material for special plantings, the PMS will request an allocation of materials for special plantings on an annual basis. The state plant materials committee will determine the number of plantings and the records, if any, that are to be kept on special plantings. Special plantings allocated by the state plant materials committee to the field offices will be included in the state annual plant materials plan or supplement.

(d) Special plantings will not be established before a decision is made to release the plant, nor will they be established outside the area of proven adaptation. These are field plantings. If the area of adaptation is not known at the time of release, a long-range plan for field plantings will be initiated. Special plantings of PMC-produced material will not usually be made after a plant release is well established in the commercial trade.

(e) Well established field plantings can be reclassified as special plantings after they have been adequately evaluated and declared inactive or terminated.

\$540.27 Seed and plant increase.

(a) An adequate commercial supply of improved plant materials is vital to the success of the plant materials program. The PMS and other appropriate plant scientists are to train district and area conservationists to work with commercial seed and plant producers and encourage them to increase SCS-released plant materials.

(b) The PMS, assisted by the state plant materials committee, is to assume leadership for encouraging the commercial increase of released cultivars to insure that adequate supplies are available. As needed, the PMS is to prepare a list of producers having materials available. This list is to be distributed as designated by the state plant materials committee, but it is not to be considered all inclusive nor an endorsement of any single grower.

(c) SCS can supply individual seed producers with such foundation or other appropriate classes of planting materials as the producer requests to establish seed fields consistent with availability of materials, requests from other producers, and the experience and ability of the requesting producer. Allocation of plant materials for commercial increase is usually made separately from allocation for field and

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540.28(c)

special plantings, and is made in such a way as to supply the bona fide needs of legitimate seed and plant producers in a fair and equitable manner.

(d) Seed and plant allocations to crop improvement associations and to soil conservation districts are to be based on existing commitments and available supplies, requests for materials, experience of growers, and the need for additional commercial increase (§541.13).

(e) Requests for plant materials to be used for commercial increase are to be submitted by memorandums, through appropriate channels, to the state resource conservationist. Seed and plant requirements and allocations for crop improvement associations are to be determined annually (§541.12).

(f) The crop improvement association is to be asked to supply SCS with a list of its cooperators who are producing SCS-released varieties. If requested, SCS is to supply the crop improvement association a list of district seed increase growers.

(g) The PMS can request a special production report on seed and plant increase plantings from the district conservationist. The request for this information is sent to the district conservationist according to the communications policies established by the state.

(h) Soil conservation district growers should be encouraged to join their respective county or state crop improvement associations and to produce certified seed. Production of certified seed will be encouraged and priority will be given in the seed allocation process to those prospective producers who agree to produce certified seed.

§540.28 Conservation field trials.

(a) Conservation field trials are not to be confused with field plantings. Conservation field trials are provided for in the General Manual 450-403.

(b) A conservation field trial is a study, which may or may not pertain to plant materials, to examine the applicability of a practice for solving a local soil and water resource problem. It usually is interdisciplinary.

(c) State plant materials committees are to give full consideration to conducting conservation field trials to determine the adequacy of certain vegetative practices for solving resource problems under various soil, climatic, and land use conditions. A conservation field trial is a primary tool in the development and refinement of various vegetative-practice technologies and the transfer of such technology.

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Subpart A - Plant Materials Reports (PMC and PMS)

PART 541 - REPORTS, ALLOCATION, AND EXCHANGE

SUBPART A - PLANT MATERIALS REPORTS (PMC AND PMS)

541.0(b)(2)(iii)

§541.0 Annual plant materials report.

(a) General. The annual plant materials report should be a brief summary of significant PMC and related activities. It should be written in a popular style. The PMC manager prepares the report, assisted by the staff and PMS's from states served by the PMC. The report provides information on new plant materials developments to SCS field offices and cooperating agencies and groups. Detailed information from initial evaluations should no longer be included in the annual plant materials report. Data on initial investigations are summarized when they are entered into the National Plant Materials Data System; therefore it is not necessary to summarize them in the annual report. Data relating to initial evaluations should be summarized when a project is completed, as outlined in §541.4(a).

(b) Content. The annual plant materials report should include the following sections:

(1) Introduction. This section should remain relatively static and should introduce the reader to the purpose and operation of the PMC. Content should include a brief history, area covered by the PMC (MLRA, climate, soils, etc.), major long-range program priorities, cooperative arrangements, and other information as needed.

(2) Project activities. This section should briefly describe important testing developments since the last report for each long-range program (LRP) priority. Subsections should be organized by LRP priority. Each subsection should summarize significant results from initial and advanced evaluations and field plantings and describe new releases.

(i) Initial evaluations. This section should briefly describe promising new accessions selected for initial increase and advanced testing. Introductory remarks to this section should indicate that seed or plants are available only in small packet amounts that will be used in controlled PMC advanced trials. New accessions should be documented only once and not repeated in future progress reports unless there is something new and/or significant to report.

(ii) Advanced evaluations. This section should summarize only significant progress for each advanced evaluation.

(iii) Plants in field planting status. This section should discuss progress with the plants in field plantings. It should briefly

§541.0(b)(2)(iii)

describe each plant and any significant new findings since the last report. Introductory remarks to this section should briefly explain field planting long-range plans and indicate which PMS or state PM committee member should be contacted to schedule plantings.

(iv) Plants available for commercial seed or plant production. This section should briefly describe all PMC cultivar releases and indicate the availability of foundation seed or plants. For each cultivar, the section should list commercial production data from the previous year as well as other documented supply and demand information that would be useful to cooperators. Obsolete cultivars need not be mentioned.

(3) References. This section should list new technical notes, journal articles, and other reports developed since the last annual report that provide detailed results of PMC testing.

(c) Distribution. The state conservationists' advisory committee determines the distribution of the annual plant materials report. Wide distribution is encouraged. The minimum distribution is:

- (1) One copy to each area and field office served by the PMC;
 - (2) One copy to each cooperating agency;
 - (3) One copy to each NTC PMS, national PMS, and NPMC manager;
- and
- (4) One copy to each PMC and PMS in the NTC service area.

The issuing PMC is to maintain file copies of each report. The NTC PMS is to maintain file copies of the annual reports of PMC's within his service area.

§541.1 Annual plant materials specialist report.

(a) In addition to providing information on field planting performance by long-range program priority for inclusion in the annual plant materials report, the PMS will prepare a report containing the following for each state plant materials committee with which he works:

- A listing of all new field plantings established during the reporting year.
- A listing of all active field plantings (§540.25[j][1]).
- A listing of field plantings placed on the inactive list (§540.25[j][2]), from the previous year's report.
- A listing of terminated (§540.25[j][3]) field plantings from the previous year's report.

(b) The report is to be used by the state's PM committee in carrying out the committee's function as set forth in §540.24(d)(4). It is to be completed by May 1 of each year.

§541.2 Annual report on plant materials activities and accomplishments (form SCS-ECS-008).

Information about plant materials activities is needed by the national headquarters in preparing program and financial plans, program data sheets, explanatory notes, budget estimates, and program evaluations. Each state conservationist is to submit this information to the director of the Ecological Sciences Division on form SCS-ECS-008 (exhibit 542.47) by July 15 each year. All plants released by SCS and produced by commercial seed companies and growers in the state are to be reported on this form (item 8). Generally, the PMS serving the state provides staff leadership in providing the information. States with a PMC are to combine information from the PMC with the information obtained from the PMS.

§541.3 Information on outstanding plant introductions.

The NTC PMS or the NPMC manager is to inform annually the regional technical committees of the four ARS regional plant introduction stations about outstanding plant introductions evaluated by SCS during the year. As requested by the NTC PMS, each PMC manager, assisted by the PMS, is to provide information about plants introduced through the ARS Plant Introduction Program. This information is to include reasons for selecting the plants for advanced testing, outstanding characteristics of the plants, and the status of the evaluations. The information is to be requested and completed by the NTC PMS.

§541.4 Project summaries, technical articles, and publications.

(a) Initial and advanced evaluation projects will be summarized upon completion. The data will be used to document plants selected from initial evaluation for advanced evaluation and plants from advanced evaluation for use in field plantings. If warranted, the data will be used for a technical-journal article, technical note, or other publication. Summaries may be distributed to potential users of the information, including official cooperators, other ecological scientists, etc.

(b) Technical reviews, state-of-the-art publications, popular articles, and technical manuals relating to plant materials are developed as needs are identified by state conservationists' advisory committees.

(c) All scientific articles are to be reviewed by the NTC PMS. Other necessary clearances are described in National Instruction No. 260-305.

541.4(d)

(d) In reports, articles, or scientific publications, the Latin binomial or trinomial (italicized in parentheses) is to be used along with the common name the first time a plant is referred to in the abstract and in the text; e.g., switchgrass, (*Panicum virgatum*). In technical writing, the authority should also be included; e.g., (*Panicum virgatum* L.). The first letter of the cultivar name is to be capitalized and the name enclosed in single quotation marks when first mentioned, e.g., 'Blackwell' switchgrass, (*Panicum virgatum* L.). Editors of certain types of popular articles prefer common names. In such cases, use of the scientific name is optional.

SUBPART B - INVENTORY, ALLOCATION, AND DISTRIBUTION OF PLANT MATERIALS

541.12(a)(1)

§541.10 General.

Plant materials produced or purchased by SCS are used for evaluation, for seed increase, or for exchange with official cooperators. Requests are filled on the basis of available plant materials.

§541.11 Inventory of seed and plant materials.

(a) By August 1 each year, unless adjusted by the NTC PMS, the PMC manager is to submit to the NTC PMS an inventory of plant materials on hand and an estimate of the amount to be produced during the current year (§540.18). This information may be submitted on a form SCS-ECS-582, Seed and Plant Inventory and Request and Continuing Needs. (See exhibits 542.48 and 542.49 for a copy of this form and instructions for completing it.) The PMC manager is to send a copy of this inventory to the field PMS.

(1) The inventory includes species, accession number or cultivar name, quantity of seed in excess of 10 pounds for herbaceous plants or 2 pounds for woody plants, and quantity of plants in excess of 25. Foundation and field planting quality seed and plants are listed separately.

(2) The NTC PMS can require that seed be reported on a pure live seed per pound basis, or he can request additional information on seed quality. The PMC manager is to insert an asterisk in the special flag column of form SCS-ECS-582 if the seed quality is very low or if the plants are smaller than those normally produced.

(b) By November 1 each year, unless adjusted by the NTC PMS, the PMC manager updates the estimates of production of seed and plants. He then advises the field PMS and the NTC PMS of the revised estimates or of the actual amount of plant materials available.

§541.12 Requests for seed and plants to meet current and continuing needs.

(a) Current seed and plant needs.

(1) Current seed and plant needs of the PMC are to be determined on the basis of project plans and supplements for initial evaluations, advanced evaluations, plant increase, and other uses. These needs are to be forwarded to the NTC PMS by August 1 each year, unless the date is adjusted by the NTC PMS, on form SCS-ECS-582 (exhibit 542.48).

541.12(a)(2)

(2) Requests by the NPMC for seed or plants of SCS-produced materials are to be submitted to the appropriate NTC PMS.

(3) Current seed and plant needs for the state plant materials program are to be determined by the PMS, assisted by the state plant materials committee(s). Needs to be included are plant materials for special plantings, field plantings, and seed or plant increase and plant materials needed by cooperating agencies and others. These needs are to be forwarded to the NTC PMS by August 1, unless the date is adjusted by the NTC PMS, each year on form SCS-ECS-582 (exhibit 542.48).

(b) Continuing seed and plant needs

(1) The PMS and the PMC manager are to prepare a summary of seed and plant needs for a 5-year period and update and extend it annually. The PMC manager and the PMS are to send copies of the summary to the NTC PMS by August 1 each year. The NTC PMS provides the PMC's in his service area with a combined summary of the continuing needs by October 1 each year and sends a copy to all PMS's in his service area and to other NTC PMS's as appropriate. This combined summary is to include plant materials needed in the NTC service area and those needed outside the service area. The NTC PMS is to coordinate production among PMC's in his service area and is to arrange to obtain needed plant materials not produced in the service area from other NTC PMS's.

(2) The continuing needs of the PMC include materials for advanced evaluations, PMC increase plantings, and other uses. The long-range plans for field plantings for each species to be evaluated, as detailed in §540.25(b), provide the basis for determining continuing needs for seed and plants for field plantings. Continuing needs also include material requested by official cooperators, such as certifying agencies, and material required for all commercial seed and plant increase.

(3) The seed or plant needs of cooperating agencies are to be determined annually at formal or informal meetings or through correspondence between the PMS and the cooperating agencies. Such contacts should review responsibilities for maintaining and producing foundation and breeder seed or plants of items cooperatively released or maintained. The 5-year estimates are to be agreed upon, revised, extended annually, and incorporated into the continuing seed and plant request.

(4) The need for district seed or plant increase can be determined based on previous requirements, anticipated commercial need for the seed or plant, and availability of producers.

§541.13 Allocation procedures.

The NTC PMS:

Subpart B - Inventory, Allocation, and Distribution of Plant Materials

541.14(b)(2)(i)

- (a) Consolidates inventories of plant materials from all PMC's in that service area;
- (b) Consolidates requests for plant materials from all sources in that service area;
- (c) Identifies requests originating in that service area for plant materials that are not available from PMC's in that service area and arranges to obtain these materials from the PMS at another NTC where the material is being produced (§541.22[b]);
- (d) Adds to the PMC production needs the plant materials requested by other NTC PMS's;
- (e) Allocates the plant materials, based on requests from all sources and on the availability of plant materials in that service area and from other NTC PMS's; and
- (f) Provides a copy of the allocation action to each PMC and PMS in that service area and to each NTC PMS by October 1 each year, unless the date is adjusted by the NTC PMS.

§541.14 Distribution of plant materials.

(a) Requests for shipment of materials.

(1) Requests for shipment of materials generally are submitted to the PMC manager on form SCS-ECS-001 (exhibit 542.42).

(2) If form SCS-ECS-001 is used, the white copy is sent to the PMC and the blue copy is retained by the PMS. Other copies are disseminated as needed. The PMC retains form SCS-ECS-001 until the seed shipment is completed.

(b) Distribution and delivery records. Each shipment of plant materials is accompanied by a properly executed Distribution and Delivery Record, form SCS-ECS-596 (exhibit 542.50).

(1) The form SCS-ECS-596 is completed on the basis of the information shown on the pertinent Plant Materials Allocation and Distribution record, form SCS-ECS-001 (exhibit 542.42) or on the planting plans for field, special, and increase plantings. Each item to be shipped is to be identified by accession number and scientific, cultivar, and common names. Whenever possible, seed are identified by lot number, year produced, and results of purity germination tests. Plants are identified by age.

(2) Form SCS-ECS-596 is disseminated as follows:

- (i) White copy to consignee;

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541.14(b)(2)(ii)

(ii) Blue copy (receipt copy) to consignee for signature, to be returned to the PMC;

(iii) Yellow copy to NTC PMS;

(iv) Pink copy to field PMS; and

(v) Green copy to be attached to form SCS-ECS-001 until receipt copy is returned, at which time it can be disposed of.

Subpart C - Exchange and Coordination of
Production of Plant Materials Among NTC Service Areas

SUBPART C - EXCHANGE AND COORDINATION OF
PRODUCTION OF PLANT MATERIALS AMONG NTC SERVICE AREAS

541.21(b)(3)

§541.20 Purpose and objectives.

Many plants are adapted to areas beyond the service area of a PMC or an NTC. To fully explore the potential area of adaptation and to most efficiently produce adequate quantities of seed or plants of new selections for evaluation purposes, a well coordinated program among NTC service areas is important. The NTC PMS's, assisted by the national PMS, are responsible for coordinating requests for production and exchange of plant materials.

§541.21 Needs.

(a) Exchange of plant materials among PMC's for evaluation purposes.

(1) Within the framework of its priorities and project plans, a PMC can request packets of seed or limited propagules directly from another PMC for a specific evaluation purpose. See 540.15 and 541.22(a) for procedures.

(2) An NTC PMS can request that an initial evaluation of a series of accessions be conducted concurrently at two or more PMC's. He submits the proposed project plan for the planned evaluation to the appropriate state conservationists' PMC advisory committee(s) for approval. If the plan is approved, a PMC is assigned the responsibility of finalizing the project plan, and the activity is scheduled in the APO's of the participating PMC's. The NTC PMS is responsible for coordinating concurrent testing.

(b) Increase for field evaluation or field plantings. If a PMC evaluates an assembly and finds that it cannot adequately increase the best accessions, another PMC may be asked to provide the increase.

(1) Such requests for an increase are to be submitted to the state conservationists' PMC advisory committee where the materials can be produced.

(2) If the increase is to be produced at a PMC in the NTC service area, the NTC PMS coordinates this activity with the appropriate state conservationists' PMC advisory committee.

(3) The procedure for such an increase outside the NTC service area is provided in §541.12 and 541.22.

541.21(b)(4)

(4) If two or more PMC's have almost equal potential for increase of the same plant, one can be assigned the responsibility for seed or plant production for the entire area of need. This activity is to be coordinated by the NTC PMS and handled as discussed in this section and in §541.22.

(5) If no other PMC has the production capacity because of climatic or other limitations, or commercial supplies can not provide the quantity of seed or plants required, the originating PMC can contract to obtain the necessary production through other agencies, institutions, or commercial growers. Such production must have the approval of the state conservationist's PMC advisory committee.

(c) Requests from noncooperating agencies, institutions, foreign countries, and private citizens. Provisions for exchange of plant materials with cooperating agencies and organizations are discussed in §541.12(b)(2). Frequently, other agencies, institutions, and private citizens are valuable sources of new plants for SCS studies. It is incumbent upon SCS to reciprocate and maintain a spirit of exchange with these groups.

(1) Domestic requests.

(i) Domestic requests that are consistent with SCS objectives and for which material is available are to be filled according to the allocation procedure outlined in subpart B of Part 541.

(ii) The originator of the request is to be notified by the state conservationist or his representative if the request cannot be filled.

(iii) Requests received by PMC's and PMS's directly from individuals or organizations outside their service areas are to be coordinated through the PMS serving the area from which the request originated. This procedure insures that the appropriate PMS is kept informed concerning such requests and permits the PMS to keep abreast of the results of studies in the service area pertaining to SCS plant materials.

(2) Foreign requests.

(i) Foreign requests for seed or plants are to be referred through the NTC PMS to the NPMC for processing. A recipient of a request (PMC manager, PMS, or NTC PMS) for distribution of plant materials to foreign countries is to provide information about the nature of the request, availability of material, type of material, and quantity needed, if known.

(ii) The NPMC is to determine the feasibility of making the shipment. If the shipment is feasible, the NPMC is to request the appropriate PMC to ship the material to the NPMC. The NPMC is to send copies of the transmittal letter to the person making the request, thereby advising him of the action taken.

Subpart C - Exchange and Coordination of
Production of Plant Materials Among NTC Service Areas

541.22(b)(5)

§541.22 Procedure for inter-NTC exchange of plant materials.

(a) Small quantities of seed or plants for evaluation purposes by PMC.

(1) If the source of an accession is known, the PMC manager may request small quantities of seed or plants directly from PMC managers in other NTC service areas.

(2) If the source for such materials is not known, the PMC manager is to forward the request to the NTC PMS. The NTC PMS is to request the material from the appropriate NTC PMS.

(3) If the material is available at a PI station, the PMC manager can request the material either directly from the PI station or from the NPMC.

(4) Copies of all correspondence are to be forwarded to the concerned NTC PMS, PMS(s), and PMC manager(s).

(b) Large quantities of seed or plants for field plantings or increase purposes.

(1) The NTC PMS is to prepare a consolidated summary of seed and plants needed in an NTC service area by October 1 each year, unless the date is adjusted by the NTC PMS (§541.13). A consolidated NTC summary of material that cannot be produced or is not available in the NTC service area is to be transmitted to the NTC PMS serving the area where the material is produced. Copies of all correspondence are to be sent to the national PMS. This list, insofar as possible, is to include annual and long-term needs.

(2) Consistent with availability and other demands, the NTC PMS concerned will allocate plant materials to meet inter-NTC requests. If adjustments in production are needed, the NTC PMS will work with the appropriate state conservationists' advisory committee to arrange for the adjustment.

(3) If the needs cannot be met by this procedure, the national PMS is to coordinate allocation and production to meet the needs.

(4) Allocation of this material is provided by the NTC PMS (§541.13). The NTC PMS also informs the NTC PMS who originated the request of the allocation and requests that shipping instructions be forwarded to the producing PMC.

(5) Frequently, PMS's or PMC's r nurserymen or seed growers for propagat initiate commercial production of relea or may not be from within the same NTC PMC. In either circumstance, the reque

541.22(b)(5)

the PMS serving the area from which the request originated, who will determine the availability of the material by checking with the appropriate NTC PMS.

(i) If the requested plant material is unavailable, the PMC manager or PMS will so advise the person making the request, with a copy of the correspondence to the SRC of the state from which the request originated.

(ii) If the requested plant material is available, the PMC manager or PMS will determine from the SRC of the requesting state the desirability of supplying the material and the manner in which it will be supplied. Perishable plant materials will be shipped directly to the nurseryman or other grower, with copies of the transmittal to the field office, the PMS serving the state, and the SRC. Seed may be sent directly or through the field office, depending on the decision of the SRC. The DC will arrange for the completion of form SCS-ADS-308, District Receipt for SCS Materials (exhibit 542.51).

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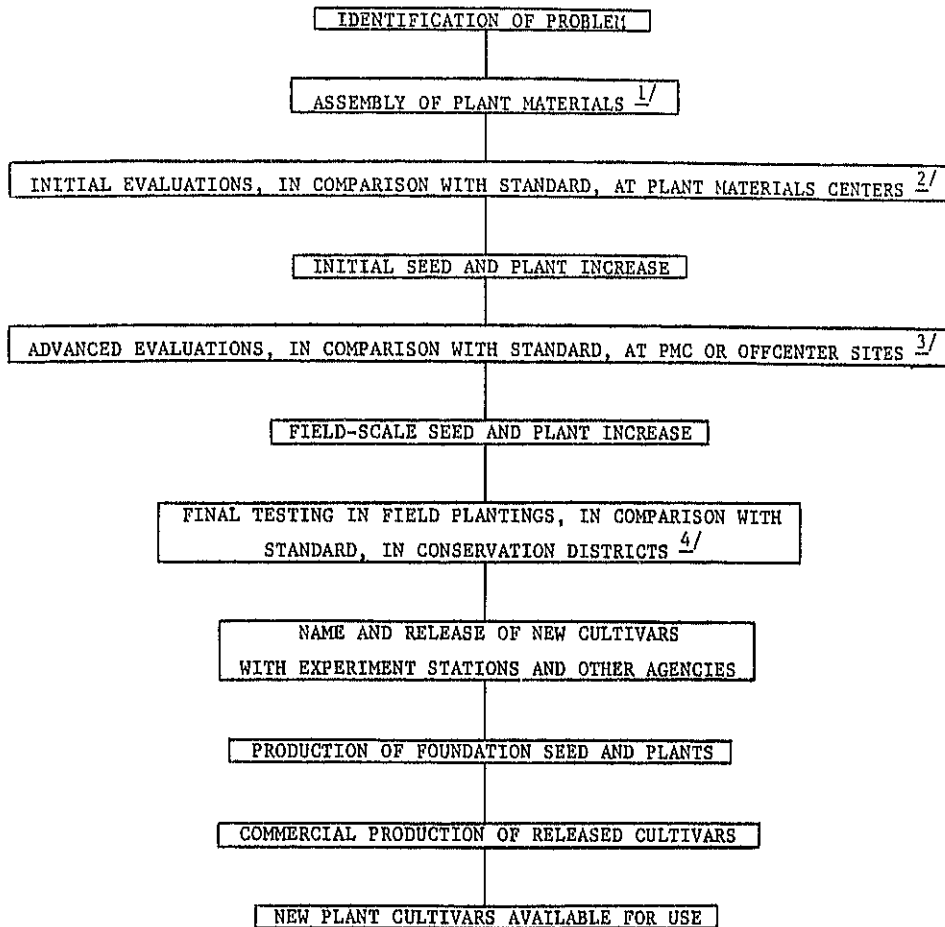
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§542.0 SCS Plant Materials Program



^{1/} Collections from native vegetation, foreign plant introductions, strains from plant breeders, and commercial seed.

^{2/} Comparative germination and seedling vigor; resistance to disease, insects, cold, and drought; response to acid or alkali soils; seeding habits and seed and forage production; season of use for range or pasture; probable conservation use and value for food for waterfowl.

^{3/} Compatibility in mixtures; fertility requirements; seeding methods; rate and date of seeding; fertilizer response; stand establishment; growth curve studies; simulated grazing studies; seed production studies; adaptation studies; root production; value for waterways, soil improvement, range, and wildlife.

^{4/} Comparative evaluation on eroded sites, on waterways, in soil-conserving rotations; for range and pasture; for watershed protection; for food and cover for wildlife and waterfowl; and final check on adaptation and cultural and management requirements.

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§542.1 'ESCOP' Agreement

A STATEMENT OF RESPONSIBILITIES AND POLICIES RELATING TO DEVELOP-
MENT, RELEASE, AND MULTIPLICATION OF PUBLICLY DEVELOPED VARIETIES
OF SEED-PROPAGATED CROPS

Approved by ESCOP:

James H. Brantley 9/10/12

Approved by ARS, USDA:

William H. Brantley

Approved by SCS, USDA:

William H. Brantley

With the concurrence of NCCPB:

Donald L. Smith

A policy statement of the Experiment Station Committee on
Organization and Policy of the Experiment Station Section
of the Association of State Universities and Land Grant
Colleges, and the Agricultural Research Service and the
Soil Conservation Service of the United States Department
of Agriculture.

June 1954
 Revised April 1962
 Revised February 28, 1967
 Revised April 20, 1972
 Final Revision June 26, 1972
 Approved by ESCOP 9/12/72
 Approved by ARS, USDA 7/20/72
 Approved by SCS, USDA 7/28/72
 Concurred in by NCCPB 8/29/72

A STATEMENT OF RESPONSIBILITIES AND POLICIES RELATING TO DEVELOP-
 MENT, RELEASE, AND MULTIPLICATION OF PUBLICLY DEVELOPED VARIETIES
 OF SEED-PROPAGATED CROPS

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FOREWORD

This policy statement pertaining to development, release, and multiplication of varieties is intended for guidance of the State Agricultural Experiment Stations and the United States Department of Agriculture. In this policy statement the term variety (synonymous with the term cultivar) is used in accordance with the International Code of Nomenclature of Cultivated Plants, 1969.

The correctness of use of the terms Cultivar and Variety in the English language is frequently not clearly understood. The International Code of Nomenclature of Cultivated Plants has adopted the term Cultivar as an international term which is proper for use in any language. In the English language, the term Variety may be used as an exact equivalent or as a synonym of Cultivar. Care should be taken not to confuse the term with the English translation of Varietas, also Variety, which is a botanical classification. To insure differentiation between Variety when used for a cultivated variety and Variety when used as a botanical classification, the abbreviation for the latter is var.

In the English language version of editions of the Code prior to 1969, the term Variety was included in parentheses throughout the Code following each use of the term Cultivar. This medium was decided upon so that no one could possibly question the complete equivalence of the terms Cultivar and Variety when referring to cultivated varieties. The redundancy of repeating both terms was eliminated in the 1969 edition by the International Commission for the Nomenclature of Cultivated Plants. Instead, the following explanations were included:

"The term cultivar is equivalent to variety in English, variété in French, variedad in Spanish, ... whenever these words are used to denote a cultivated variety."

Article 10, Note 4:

"The terms cultivar and variety (in the sense of cultivated variety) are exact equivalents. In translations or adaptations of the Code for special purposes either cultivar or variety (or its equivalent in other languages) may be used in the text."

Clearly, the 1969 edition in no way represents a change in policy relative to the use of the English term Variety. In fact, if the Code were to be reproduced for popular use in the English language, the International Commission would sanction use of only the term Variety throughout the entire Code. There certainly is not regimentation in the Code for universal use of the term Cultivar when referring to cultivated varieties.

It would seem that good judgment should prevail in the use of equivalent terms. In scientific papers which have international consumption, the international term Cultivar may be most clearly understood. In papers or documents intended for use by the English-speaking lay public or non-scientific community, the term Variety may often be considered the more desirable synonym.

The term "variety" means a subdivision of a kind which is distinct, uniform, and stable: "Distinct" in the sense that the variety can be differentiated by one or more identifiable morphological, physiological, or other characteristics from all other varieties of public knowledge; "uniform" in the sense that variations in essential and distinctive characteristics are describable; and "stable" in the sense that the variety will remain unchanged to a reasonable uniformity when reproduced or reconstituted as required by the different categories of varieties. The definition of a variety is understood to include the following categories: clonal varieties, line varieties (inbreds), open-pollinated varieties of cross-fertilizing crops, synthetic varieties, hybrid varieties (F_1), and F_2 varieties.

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This policy statement has been developed with full cognizance of the contents and implications of the Variety Protection Act, Public Law 91-577. Mutually helpful working relationships among the State Agricultural Experiment Stations, the United States Department of Agriculture, and private plant breeders and seed companies should be encouraged to enhance the effectiveness of both public and private plant breeding efforts.

This revision of the policy statement (dated June 26, 1972) supersedes all previous documents. It has been approved in the four State Agricultural Experiment Station Director's Associations, The Experiment Station Committee on Organization and Policy (ESCOP), and the Agricultural Research Service and the Soil Conservation Service of the USDA.

This statement outlines general policies and procedures and points up general functions and opportunities for improving both public and private activities and services in the development and use of improved seeds and other propagation materials of publicly-developed varieties. It covers seed-propagated varieties of both field and horticultural crops. Adaptations to specific crops will be required.

The first seed policy statement was approved by ESCOP and the USDA on November 13, 1954; First Revision approved April 25, 1962; Second Revision approved February 28, 1967; and this, the third revision, was approved by ESCOP _____ and USDA _____. It has been concurred in by the National Council of Commercial Plant Breeders (NCCPB).

A STATEMENT OF RESPONSIBILITIES AND POLICIES RELATING TO DEVELOPMENT, RELEASE AND MULTIPLICATION OF PUBLICLY DEVELOPED VARIETIES OF SEED-PROPAGATED CROPS

State Agricultural Experiment Stations (SAES) and the U.S. Department of Agriculture (USDA) were established to serve farmers, industries related to agriculture, and through these, all the people. SAES and USDA have functions and responsibilities at local, state, regional, and national levels. Both are supported largely by public funds. The public interest and good judgment require that they work together and reduce duplication to the desired minimum. Close cooperation in developing policies for making results of individual and joint effort available to the public is an obligation. This includes policies concerned with developing and distributing improved crop varieties from state and federal plant breeding operations, and also working with and assisting private enterprise to serve the public effectively.

A statement of important points of policy in developing improved varieties and releasing these to seed producers and seed users follows:

1. Sources for New Germplasm¹ Improvement
 - (a) Collection, introduction and preliminary evaluations of new plant germplasm

The USDA, through its Agricultural Research Service, in cooperation with the State Stations and the SCS National Plant Materials Center, collects, distributes, and preserves plant germplasm from foreign and domestic sources. Through various cooperative arrangements, plant characteristics are determined and catalogued. These include reactions to insects, diseases, and climatic variations, and determination of quality, potential promising end-products, and other desirable traits. This information is made available to public and private agencies.

State and other federal agencies also conduct domestic and foreign plant explorations. Such activities should be coordinated with those of the Agricultural Research Service in order to eliminate possible duplication in germplasm originally introduced and its subsequent evaluation and distribution. Provision to make resulting plant collections available to public and private plant breeders is encouraged.

Breeding lines and nonreleased varieties received from cooperating scientists, domestic and foreign, should be handled in a manner that will not violate the terms or conditions under which they are obtained.

- (b) Use of introductions

As a further source of information on the characteristics of introductions, reports on observation and performance tests are requested from those receiving the materials. These reports are compiled, annotated, and disseminated through

1

Germplasm is defined as the material basis of heredity. The one word format has been adopted. (Dictionary of Genetics, R. L. Knight, Chronica Botanica Company, Waltham, Massachusetts, 1948.)

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the four regional research (RRF) projects on new crops.² Lists of stocks preserved in the National Seed Storage Laboratory, Fort Collins, Colorado, are prepared and distributed. Individuals or organizations proposing to increase and distribute seed or plant materials of such introductions in their original genetic form are asked to make this intention known to the agency from which the material came. Plans for joint release, thereby, can be considered. Confusion that might arise from duplication of identifying names or numbers given to the same introduction by public or private interests can thus be avoided (see section 5).

(c) Recognition of originating source of introduced materials

The source of introduced plant materials should be publicly acknowledged. Original Plant Introduction (PI) number or other identifications should be cited.

When the genetic make-up of the introduced material is modified by selection, inbreeding, or hybridization, and the value of the line has been demonstrated as a new variety, a breeding line, or as the source of a specific genetic character, the agency providing the original material should be informed of the specific characters in the new variety or line derived from the original introduction. The original source of these breeding materials should be acknowledged publicly, again referring to the PI number, or to an identifying accession number when no PI number has been assigned.

2. Studies of Heredity and Methods of Improvement

(a) Obligation of State Agricultural Experiment Stations and U.S. Department of Agriculture

The SAES and USDA are obligated to conduct studies of the characters and properties of plant materials, modes of reproduction, the inheritance of characters, and the possibilities of modification and control of heredity.

(b) Prompt availability of results

These agencies and their workers are further obligated to make the results of these studies available to all plant breeders, public or private, through prompt publication of research findings.

(c) Availability and use of basic genetic materials

Basic genetic materials should generally be released to all plant breeders who request them. The term basic genetic material refers to plant material possessing one or more potentially desirable characters which, in the opinion of the Experiment Station Directors and/or agency Administrators, may be of value in plant breeding and when, in their opinion, such

2

Reference: The National Program for Conservation of Crop Germplasm. A Progress Report on the Introduction, Screening and Preservation of Plant Material, June 1971. University of Georgia, Athens, Georgia.

general release is in the best interests of United States agriculture and the state or agency research program.

Periodically, the originating station and/or agency should notify the public of germplasm releases, specifying limitations on use and on the amount of material available for distribution.

Every effort should be made to insure that basic genetic materials are not monopolized by any interests. Furthermore, inbreds, experimental lines, and basic genetic materials should not be released in foreign countries prior to their release in the U.S., unless it is agreed that there is little prospect of the material being of value in this country.

(d) Acknowledgment of use of publicly or privately developed basic genetic materials

Public acknowledgment of the use of publicly or privately developed basic genetic materials in the development of a new variety is an obligation of the recipient agency, industry group, or individual as it gives due recognition to the contribution by public or private programs.

3. Breeding to Develop Superior Varieties

(a) A function of the Stations and the U.S. Department of Agriculture

The breeding of better varieties to reduce production hazards, to improve quality, and to increase biological efficiency is one of the important functions of the State Stations and the Department. As problems arise which can be solved by plant breeding, it is obvious that these governmental agencies have an obligation to investigate them.

(b) Interrelations with private plant breeding programs

Free interchange of a wide range of materials, specialized facilities, scientific competence in many disciplines, and the opportunity to test, observe, and to study reactions under a wide range of environmental conditions enhance the probability of success.

(c) Acknowledgment of use of publicly and privately released germplasm

Public acknowledgment of the use of publicly and privately released germplasm in a closed-pedigree variety is an obligation of the recipient agency, industry group, or individual as it gives due recognition to the contribution by public or private programs.

4. Testing and Evaluating Experimental Varieties

(a) Adequate comparisons with standard varieties

Experimental varieties and lines should be tested for yield, quality, survival, disease and insect reaction, and other important characteristics in comparison with standard varieties, using techniques that assure valid measures of performance.

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(b) Interstate and regional tests

Some varieties are not limited in adaptation by local, state, regional, or national boundaries. Interstate testing and interchange of materials should be encouraged. When appropriate, international testing should also be encouraged. Regional testing facilitates more general use of widely adapted varieties. It also reduces time needed to provide reliable information on varietal adaptations.

(c) Testing for special requirements

New varieties of crops to be used for food should be tested for those components of nutritive composition or concentration of toxic constituents in which they reasonably might be expected to vary significantly from varieties in commercial production. The term "vary significantly" has been tentatively defined as varying 10 percent in toxicological content and 20 percent in nutritive content. The Food and Drug Administration, HEW, requires submission of data for proposed new food varieties that have had significant alteration of such composition. Submitted data will permit determination as to whether the variety merits listing as "Generally Regarded as Safe" (GRAS). (Federal Register, Document 71-8976, page 12094, June 18, 1971).

New varieties of crops to be used for specialized industrial or other purposes should be tested for these uses to insure that they are satisfactory. The trade, industry, and specialists using the crop should have opportunity to evaluate a variety before it is released.

(d) Protecting lines and varieties against premature or unauthorized distribution

All reasonable precautions should be taken to protect the privileged or restricted status of propagating materials, experimental lines or experimental varieties during testing and seed increase to prevent pirating and premature or unauthorized distribution prior to release. The possibility that an application for variety protection may be filled intensifies the need for such precaution.

5. Decisions on Release of Varieties

(a) Policy committee or board of review for variety release

Decisions on the release of new varieties should be made for each state by the appropriate agricultural agency of that state. It is recommended that in each state there be a policy committee or board of review charged with the responsibility of reviewing the proposal for the release of a new variety. Appropriate information concerning characteristics, performance, area of adaptation, specific use values, seed stocks, and proposed methods of varietal maintenance and increase and distribution should be presented to this committee as a basis for its decision.

(b) Interstate release procedures

When a variety has been tested on an interstate basis, opportunity to consider simultaneous release should be given each state in the interstate program.

If, for some reason, prior interstate testing was neglected or impossible, the state which may shortly release a new variety should offer to all interested states seed of the new variety for testing and increase. Nearby states may thus obtain information to answer questions from potential users about the new variety. Regional advisory committees may set guidelines for sharing of foundation seed stocks among states.

When the development of a new variety is the result of cooperative effort by a state or states and a federal agency, consideration for release should be a joint responsibility of the agencies involved. Appropriate use should be made of the services of National Variety Review Boards of the Association of Official Seed Certifying Agencies and the U.S. Plant Variety Protection Office in determining novelty of and in cataloging new varieties.

6. Standards for Release of Varieties

A variety should not be released unless it is distinctly superior to existing varieties in one or more characteristics important for the crop, or it is superior in overall performance in areas where adapted, and is at least satisfactory in other major requirements. A single major production hazard which a new variety can overcome, e.g., a highly destructive disease, may become the overriding consideration in releasing a variety. Varieties with a very limited range in adaptation should not be released unless performance in that limited range is outstandingly superior, or the variety possesses important use values not otherwise available, including diversification of the germplasm base for a species.

7. Naming and Registering of Varieties

(a) Designation

A new variety should be given a permanent designation before it is released. The designation should be acceptable to the states participating in the release, but the originating station or agency has the final responsibility. Brevity in designation is desirable. When this designation is a name, one short word is preferable; two short words are, however, acceptable. Meaningful number designations or combinations of words, letters and numbers, consistent with accepted procedures, are also acceptable.

The International Code of Nomenclature for Cultivated Plants provides guides for the naming of varieties. It is recommended that this source be consulted with respect to new variety names.

(b) Use of names

Under no circumstances should a variety be distributed under more than one name nor should the same name be used more than once in a given crop. Similar names should also be avoided. Provisions of the Federal Seed Act (53 Stat. 1275) apply.

Once established, a legitimate varietal name should not be changed. Names which are misleading or which are identical or similar to brand names or trademarks associated with agricultural products should be avoided, as there may be an implied association of the variety and trade names or trademarks.

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Proposed names should be cleared for possible infringement of trademarks, and previous use of the proposed variety name. This can best be accomplished by contacting the Seed Branch, Grain - Division, Agricultural Marketing Service.

(c) Registering varieties

Information on new varieties of crops for which national variety review boards have been established should be submitted to the review board following consideration by the state variety committee but before final release is made.

New varieties of crops should be registered. Information for the registration or listing of varieties should be submitted promptly following registration of the variety with the Crops Science Society of America or the listing of the variety with the American Society for Horticultural Science. Procedures for the registration of varieties are available from CSSA, and procedures for listing of varieties are available from ASHA.

8. Definition of Seed Classes and Certification Standards

The Association of Official Seed Certifying Agencies in its "Certification Handbook", Publication No. 23, dated June 1971, defines the various classes of seed and certification standards. These definitions as they now stand and as they may be amended in the future are hereby made a part of this policy.

9. Increase and Maintenance of Breeder Seed

(a) Responsibility for maintaining breeder seed

The originating Station or Agency should prepare a statement of plans and procedures for maintenance of stock seed classes, including limitations on the number of generations through which the variety may be sold by variety name.

When a variety is sufficiently promising to justify consideration for release, breeder seed should be increased to the volume needed to produce and maintain required foundation seed. So long as a variety is retained on the recommended list of the originating state, that state should maintain a reasonable reserve of breeder seed, which will be used to replenish and restore foundation seed of the variety to the desired level of genetic purity. When the variety is distributed in several states, or when the originating state or agency ceases to maintain breeder seed of a variety, a mutually satisfactory plan should be formulated by the interested states or agencies regarding the maintenance of breeder seed. Interested states should be notified well in advance by the originating state or agency when it plans to discontinue maintenance of breeder seed of a variety.

When a variety is to be released jointly by two or more states a procedure should be formulated for a supply of breeders seed to be made available to each state.

(b) Supplying sample of seed to National Seed Storage Laboratory

A sample of breeder or foundation seed of all newly released varieties should be supplied by the originating state or agency

to the National Seed Storage Laboratory, Fort Collins, Colorado. Recording forms are provided by that laboratory.

10. Increase, Maintenance and Distribution of Foundation Seed

(a) Multiplication of foundation seed

An adequate and recurring supply of foundation seed is of prime importance in the multiplication of a variety. Reserves of foundation seed should be maintained to assure a continuing supply in the event of a seed crop failure. Foundation seed of publicly produced varieties should be increased under official guidance. It should be produced by those who have the experience, facilities, and skill to assure adequate supplies of seed with acceptable levels of genetic purity.

(b) Distribution of foundation seed

Minimal problems arise when there is simultaneous release of foundation seed of a new variety in all interested states. When a variety release is not simultaneous, distribution of foundation seed may present problems among the states. When foundation seed is distributed into another state where the variety is being distributed under allocation as a new release, the foundation seed should be offered through, or with the concurrence of, the official seed stocks or certifying agency in that state.

(c) Basic principles in foundation seed programs

Foundation seed should be released in a manner that will be of the greatest benefit to users and the public in general. Foundation seed should not be used for speculative purposes. Within this context, Foundation Seed programs should recognize the following basic principles:

- (1) Qualified seed growers and seedsmen should have an opportunity to obtain appropriate planting stocks of unrestricted varieties at an equitable cost, recognizing that selective allocations may be necessary to achieve increases to meet the needs of potential users.
- (2) Restricted release of breeder and/or foundation seed of a variety is acceptable in situations and to the extent that general release to seed growers and/or seedsmen will not provide adequate seed of the variety on a continuing basis. If a restricted release policy is chosen for release of a variety, state and federal agencies, as well as private breeders (through state seed associations, ASTA, NCCPB) should be appropriately notified and given an opportunity to respond or bid on that particular variety.
- (3) Planting stocks of varieties developed of USDA ordinarily will be made available of the seed stocks or certifying agency and equitable cost to qualified seed growers under circumstances, e.g. No. 2 above, considering limited term exclusive rights.

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For this purpose, consideration should be given to applying for certificates of variety protection under the Plant Variety Protection Act. Where the new variety was developed cooperatively, the certificate will normally be assigned jointly to the USDA and the cooperator. When the cooperator is a public institution, title may be left with the cooperator provided he follows the guidelines set forth in Federal Regulations as to licensing.

11. Preparation and Release of Information

(a) Coordination of publicity among states and agencies

Seed producers, distributors, and users should be informed as fully as possible, consistent with variety testing policies and procedures within each state, of the values and the adaptation of new varieties in comparison with other available varieties.

Pertinent information as to the basic facts of origin and characteristics, and data justifying the increase and release of a new variety, shall be prepared by the fostering state(s) and/or agency(ies) and provided to other interested states or agencies. The information used in deciding upon release of a new variety should also be used to inform seed producers, distributors, and the public of its value. Participating states or agencies should use this material, supported or modified by their own information, in state or nation publicity. Publicity intended for national or regional periodicals should include information on the regional adaptation of the variety. A uniform date for the release of initial publicity should be agreed upon by the fostering states and/or federal agencies.

Appropriate information concerning actions with respect to Plant Variety Protection, including certification requirements, should be included in publicity releases, when appropriate.

The above procedure is intended to provide information that is complete, fair and unbiased, and will make it possible for seed producers, distributors, and users to make sound judgments in selecting varieties.

(b) Matching seed production and demand of varieties

Seed production and demand must be developed together insofar as possible to assure that a variety will make its maximum contribution to agriculture. Thus, promotional publicity in advance of the release of a new variety, or before seed is available, or incomplete publicity following its release are not desirable. An educational program setting forth the superior characteristics, region of adaptation, and any special limitations which have been identified should be coordinated with seed supply.

Prepared by the Seed Policy Subcommittee of the Experiment Station
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Third Revision

Approval Signatures

Date

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JUL 28, 1972 <u>William H. Borger</u> (Administrator, SCS, USDA)	<u>7/28/72</u>
Aug 29, 1972 <u>Donald L. Smith</u> (President, NCCPB)	<u>8/29/72</u>

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- (iii) Water quality (well testing, irrigation salinization, drainage)
- (iii) Waste disposal (pesticide use and container disposal, sewage, solid wastes, oils)
- (2) Are current codes of state air, water, and waste quality standards available?
- (3) Are waste disposal methods periodically reviewed by representatives of state quality control agencies?
- (4) Is the use of pesticides in compliance with 190-04 of the General Manual?
- (4) Current copy of State pesticide controls
- (iii) Training and certification of appropriate personnel in pesticide handling and application
- 7. Tour of the PMC and, if practical, a field evaluation planting (time and place on the agenda to be adjusted as necessary) — PMC manager
- a. Does the PMC have a current conservation plan? Is a history of land use and treatment included as a supplement?
- b. Does the PMC have a landscape plan?
- c. Evaluate safety of all operations
 - (1) Are safety meetings held regularly?
- d. Evaluate the appearance and quality of physical plant, grounds, technical projects, and documents
- e. Is the U S flag flown?
- 8. Status of State long-range plant materials programs — State conservationist(s)
- a. How are programs developed?
 - (1) Is the State plant materials committee interdisciplinary?
 - (2) Do field personnel participate in development?
- b. Are all plant materials needs shown and priorities assigned?
 - (1) Are needs specific, and are the land resource areas where needs exist identified?
 - (2) Are the programs current?
- 9. Long-range plant materials program for the PMC — PMC manager
 - a. How is the program developed?

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Chairperson:

Participants:

1. History of the PMC — State conservationist
2. Objectives and procedures of appraisal — Chairperson
 - Refer to General Manual and the National Plant Materials Manual.
3. Review report of last PMC appraisal — Chairperson
4. Review report of last State Conservationists' Advisory Committee and progress made on recommendations — State conservationist
5. State supplements to NPM — State conservationist
6. Operation of the PMC — State conservationist and PMC manager
 - a. Physical facilities
 - (1) Land adequacy and tenure (PMC and field evaluation sites)
 - (2) Water supply — domestic and irrigation
 - (3) Buildings — adequacy, maintenance, and needs
 - energy conservation needs and schedule
 - handicapped access provisions
 - (4) Equipment adequacy and replacement
 - (i) 5-year acquisition and replacement schedule
 - (ii) Is all equipment in a safe operating condition?
 - b. Budgeting, fiscal, and procurement procedures
 - (1) Budget procedures
 - (2) Purchase and procurement
 - (3) Use of funds, percentage for personnel, etc.
 - (4) Adequacy of funds
 - (5) Are budget records maintained at PMC?
 - c. Status of environmental considerations
 - (1) Are waste disposal methods in compliance with quality control standards?
 - (i) Air quality (dust, smoke)

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- (5) Are leaflets, summaries, or popular or scientific articles prepared on individual plants or studies?
- (6) Do individuals and groups visit the center and attend meetings?
 - (a) Are technical reviews held for field personnel?
 - (b) Are field days or nontechnical reviews periodically held for others?
- (7) What are the contributions of plants released from the center?
13. Field plantings — Field plant materials specialists
 - a. Are field plantings consistent with the needs and priorities established in the state and FMC long-range programs?
 - b. Are long-range plans for field plantings consistent with policies and procedures established in the National Plant Materials Manual?
 - c. Are state annual plant materials plans prepared and how does the state plant materials committee participate in the development of such plans?
 - d. How are evaluations of field plantings conducted?
 - (1) Do other plant scientists participate, and is this formalized through individual APGs and schedules?
 - (2) How are evaluations scheduled, and is their completion insured?
 - e. Are annual technical reports prepared?
 - f. How are decisions made concerning when a plant is ready for release?
 - g. Do all plants in active field plantings have potential for release? If not, are there other specific objectives?
 - h. How are field personnel, other agencies, cooperators, and other potential users informed of new improved plant materials?
 - (1) Are plantings guides prepared?
 - (2) Are new releases included in technical guides?
 - (3) Are other information leaflets, technical notes and publications used?
 - (4) Are technical journals used to summarize results of field plantings?
 - i. Is the commercial increase of improved plant materials adequate to meet the needs?
 - j. Is any "special production" authorized?
 - k. Review of current activities (use of slides suggested)

- (1) Who assists in preparing the program?
- (2) How is the program kept current?
- (3) Is the program consistent with the National Conservation Program?
 - b. Does it relate to the priority needs established in the State long-range plant materials program? Are the priorities established and specific needs shown consistent with the objectives and priorities of the National Conservation Program?
10. Annual plan of operations for the FMC — FMC manager
 - a. Are the plant materials activities conducted at the center consistent with the priorities set forth in the FMC long-range program?
 - b. How is the APG developed, and do others participate in the development or review?
 11. FMC procedures — State conservationist & FMC manager
 - a. Are procedures consistent with those indicated in the National Plant Materials Manual?
 - b. Review
 - (1) Assembly of plant materials
 - (2) Project plans and supplements for projects at center and for field evaluation plantings. Do the field FMC's and other State or NTC plant scientists have input?
 - (3) Quality of documentation. Do the state resource conservationists, field FMC(s) and other State and NTC plant scientists assist with the evaluations and review the work and make recommendations?
 - (4) Procedures for increase, storage, inventory, allocation, and distribution of seed and seedling plants.
 - (5) Procedures for maintenance and distribution of foundation planting stock.
 - (6) Potential new plant releases and schedule.
 - c. Evaluate use of results of work.
 - (1) Is the annual plant materials report current?
 - (2) Is the annual plant materials report distributed to area and field offices and others?
 - (3) Are completed advanced evaluations summarized and published as NTC or State technical notes or in technical journals?
 - (4) Does the center have a current brochure?

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(2) What is done to encourage self-improvement?

(3) Do the PMC manager and soil conservationist have an opportunity to spend some time away from the center evaluating field plantings and problems.

(4) With the PMS?

(11) With other field specialists?

(4) Is the PMC used as a training center?

(1) For student trainees?

(11) For training of field office personnel?

f. Is membership in professional organizations and attendance at meetings encouraged?

g. Is there an awards and commendations program?

15. Degree to which the program at the center and related plant materials work (field planting, field evaluation plantings, seed and plant increase) are meeting the needs in other states served, and suggestions for improving the effectiveness of the program — State conservationists from other states.

16. Review draft of appraisal report and plans for completion and distribution of final report

13. Relationship with other agencies, conservation districts, and others.

a. What agencies and organizations work with the PMC & PMS? Are there any problems concerning the cooperative release of new plants?

b. Does the state conservationist enter into formal cooperative agreements and memorandums of understanding?

(1) With state and other federal agencies and others to name and release new plants (NSCOP).

(2) With conservation districts;

(3) With state experiment stations or crop improvement associations for the production, maintenance, and distribution of foundation seed; and

(4) For other cooperative studies of new plants?

c. Are there need and opportunities for other cooperative agreements?

14. Personnel administration — State conservationist.

a. Lines of authority.

b. Job responsibilities - duties, descriptions, and standards of performance.

(1) PMC manager

(2) Field plant materials specialist

(3) Soil conservationist, PMC staff

(4) Biological technician(s)

c. Relationship with the field PMS and State and NTC specialists:

(1) In developing plans.

(2) In allocating plant materials.

d. Staffing

(1) How is this determined?

(2) Is the staff adequate? If not, what are the staff needs to conduct a more efficient program?

(3) Is the Equal Employment Opportunity (EEO) program supported? Is the poster displayed showing the name, address, and telephone number of the EEO officer?

e. Training

(1) Are training plans current?

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Band applications. An application to a continuous restricted area, such as in or along a crop row, rather than over the entire field area (11).

Basal treatment. Herbicide applied to the stems of woody plants at or just above the ground (11).

Bimodal. A plant that completes its life cycle in 2 years. The first year it produces leaves and stems food. The second year it produces fruits and seed (11).

Blend. A mixture of seed of known proportions of two or more lots or varieties of the same species (10).

Blind cultivation. Cultivating before a seeded or planned crop emerges (11).

Breeder's rights. The assurance that the owner of a crop variety has exclusive control over the increase, distribution, and merchandising of a variety. The protection may be afforded by legislation and regulatory control, by agreement among individuals concerned, or by biological features inherent in the variety. The breeder is assured that his authorization must be obtained before the variety can be reproduced or sold by anyone else. See "Plant Variety Protection Act."

Breeder's seed. See classes and sources of certified seed.

C-3 plants. See photosynthesis.

C-4 plants. See photosynthesis.

CAM plants (Crassulacean Acid Metabolism). See photosynthesis.

Carrier. A liquid or solid material added to a chemical compound to facilitate its application in the field (11).

Classes and sources of certified seed.

Breeder seed. Also breeder's seed. Seed or vegetative propagating material which is directly controlled by the originator or, in some cases, the sponsoring plant breeder, institution, or firm, and which supplies the source for initial and recurring increase of foundation seed (11 C A definition).

Foundation seed. Seed stock that are so handled as to most nearly maintain specific genetic identity and purity. Production must be carefully supervised by the originating agency, and approved by the certifying agency, the agricultural experiment station, or both.

Registered seed. The progeny of foundation seed that is so handled as to maintain satisfactory genetic identity and purity and that has been approved and certified by the certifying agency. Such classes of seed should be of a quality suitable for production of certified seed.

Selected seed (green tag). Selected seed shall be seed from rigidly selected trees, shrubs, or stands that have promise of genetic superiority but that have not been progeny tested.

Terms Commonly Used in Plant Materials Work

The following list of terms, although not complete, defines some terms commonly used by plant scientists. Italic numbers in parentheses following a definition refer to the primary source of the definition (see "Glossary References"). The references should be included in plant materials libraries.

Accession. Plant material (plant, seed, or vegetative part) collected and assigned a number to maintain its identity during evaluation, increase, and storage (9).

Acid equivalent. The theoretical yield of parent acid from an active ingredient (11).

Active ingredient. The chemical compound in a product that is responsible for the herbicidal effect (11).

Advanced Evaluation. The more intensive testing of plants which have been selected as being superior in one or more attributes to the initial evaluation. (See §540.16(b).)

Aggressiveness. Seedling vigor related to ease of establishment, also capacity of well-established plants to compete with associated grasses, legumes, or weeds (5).

Allele. A pair of characters that are alternative to each other in inheritance; they are governed by genes at the same locus in homologous chromosomes (1).

Allopolyploid. A polyploid containing genetically different sets of chromosomes; for example, sets from two or more species (1).

Amphidiploid. A polyploid whose chromosome complement is made up of the entire somatic complements of two species (1).

Aneuploid. An organism whose somatic number is not an even multiple of the haploid number (1).

Annual. A plant that completes its life cycle from seed in 1 year (11).

Annual plan of operations (APO). A document to indicate how the PMP resources are to be used. It should be brief, flexible, realistic, and open-ended. It should be consistent with General Manual 330, Part 403.

Apomixis. Reproduction in which sexual organs or related structures take part but fertilization does not occur, so that the resulting seed is vegetatively reproduced (1).

Assembly. A systematic collection of plants (seed or vegetative material) of one or more species to be evaluated for a planned purpose.

Aucomulyploid. A polyploid arising through multiplication of the complete haploid set of a species (1).

Backcross. The crossing of a hybrid with either of its parents. In genetics, the crossing of a heterozygote with a homozygous recessive (1).

§542.3 Glossary of terms commonly used in plant materials work

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mutual benefit to the parties concerned. The parties work jointly in the undertaking -- not each working within its own sphere of work and authority as under a memorandum of understanding relationship. The cooperative agreement is a fiscal document, and the period of time covered must not exceed the period for which funds are available for obligation. (See ASH \$300.)

Crossing-over. The exchange or corresponding segments between chromatids of homologous chromosomes during meiotic prophase. The genetic consequence is the recombination of linked genes.

Cross pollination. The transfer of pollen from one flower to the stigma of another flower on the same plant or on different plants, depending on the species and other conditions (1).

Cultivar. The international term cultivar denotes an assemblage of cultivated plants that is clearly distinguished by any characters (morphological, physiological, cytological, chemical, or others) and when reproduced (sexually or asexually), retains its distinguishing characters. The term is derived from cultivated variety, or their etymological equivalents in other languages. The terms cultivar and variety are equivalents.

The concept of cultivar is essentially different from the concept of botanical variety. Varieties are always in Latin form and are governed by the Code of Botanical Nomenclature (6).

Cultural evaluation. Studies designed to obtain information regarding establishment, management and production of plant materials. They may be conducted on or off the center at any stage of the evaluation process.

Defoliant. A compound that causes the leaves, or foliage, to drop from a plant.

Desiccant. A compound that promotes dehydration or removal of moisture from plant tissue (11).

Diluent. Any liquid or solid material serving to dilute an active ingredient in the preparation of a formulation (11).

Dissectious. Having staminate and pistillate flowers occur on different plants (1).

Diploid. Having two chromosomes of each kind. Having the basic chromosome number doubled (1).

Direct application. Method of applying chemicals or fertilizers directly to a restricted area, such as a row or a bed, at base of plants (11).

District seed increase. See \$540.27

Dormancy. An internal condition of the chemistry or stage of development of a viable seed that prevents its germination, although temperature and moisture are adequate for growth (9).

Euphene. Plants differing in appearance, especially in the size of vegetative parts, numbers of stems, erectness, and reproductive vigor but

Source-identified seed (yellow tag). Source-identified seed may be seed from (a) natural stands with the geographic area known and (b) from plantations or shelterbelts of known provenance.

Certified seed. The progeny of foundation or registered seed that is so handled as to maintain satisfactory genetic identity and purity and that has been approved and certified by the certifying agency.

At the discretion of the certifying agency (when considered necessary) no maintain adequate seed supplies) registered seed may be the progeny of registered seed, and certified seed may be the progeny of certified seed, provided the genetic purity will not be altered by permitting such exception (1).

Clone. A group of genetically identical plants produced by vegetatively propagating a single plant over one or more vegetative generations.

Combining ability. General -- the average performance of a strain in a series of crosses. Specific -- deviation from performance predicted on the basis of general combining ability.

Conservation field trial. A simple study of nonresearch nature designed to examine the applicability of a practice for the solution of a local soil and water conservation problem. It is not to be confused with plant materials field plantings (see General Manual 450-403).

Commercial seed. Other than recognized improved varieties of seed in commercial channels.

Common seed. Noncertified seed. Such seed may be a named variety but are not grown under the certification program (10).

Companion crop. A crop sown along with another crop; used particularly for small grain with which a forage crop is sown. Companion crop is preferred to the term "nurse crop" (1).

Compatible. Compounds or formulations that can be mixed and applied together without unduly altering their separate effects. This term can be applied also to species mixtures (11).

Composite. The SOS in its plant development program may select materials of different origins and plant as a mixture to serve as the breeder field. This is one of the alternatives of the mass selection technique and should not be confused with a polycross. See "mass selection" and "polycrosses."

Concentration. The amount of active ingredient or acid equivalent in a given volume of liquid or in a given weight of dry material (11).

Contact herbicide. An herbicide that kills a plant primarily by contact with plant tissue rather than by translocation (11).

Cool-season plant. A plant that makes its major growth during the cool part of the year, mainly in spring but in some localities in winter.

Cooperative agreement. A written document evidencing the intent of two or more parties to cooperate in carrying out an undertaking that will result in

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Growing season. The period, number of days, or both between the last frost in spring and the first freeze in fall for the freeze threshold temperature of the crop or other designated temperature threshold.

Hard seed. Seed that remain hard at the end of a prescribed germination test because they have not absorbed water because of an impermeable seed coat (10).

Herbaceous. A vascular plant that does not develop woody tissue (11).

Heritability. The proportion of observed variability due to heredity; the remainder is due to environmental causes (1).

Heterosis. Hybrid vigor such that the F₂ hybrid falls outside the range of the parents with respect to some character or characters (1).

Heterozygous. Having unlike alleles at one or more corresponding loci (such as Yy) (1).

Homozygous. Having like alleles (such as YY). An organism may be described as homozygous at one, several, or all loci (1).

Hybrid. The progeny of a cross between genetically unlike parents (1).

Initial evaluation. The evaluation of the characteristics and comparative performance of an assembly of plants under controlled conditions so that promising plants can be selected for further evaluation. (See §540.10(a).)

Initial increase. The production of small quantities of seed of other reproductive phases of materials selected from initial or advanced evaluations to be used for further evaluation and exchange.

Kind. One or more related species or subspecies that singly or collectively is known by one common name; for example, wheat, vetch, and sweetclover (10).

Limited generations. A restriction placed by the developer on the number of generations through which a variety may be sold by various name.

Line. A group of individuals of common ancestry. Genetically, a more narrowly defined group than a strain or a variety (1).

Linkage. Association of genetic factors, the genes are in the same chromosome (1).

Long-range program. See §540.16(a).

Mass selection. Selection of individual plants and propagation of the next generation from the aggregate of that seed (1,5).

Memorandum of understanding. A written instrument evidencing the intent of two or more parties to cooperate in carrying out an undertaking that will result in mutual benefit to the parties concerned. Such party works within its own sphere of work and authority. It is not a fiscal document used as a basis for obligating funds. It may run for an indefinite time or be limited. (See also §300.)

belonging to essentially homogeneous genetic stock. Their distinctness is due entirely to environmental influences, for when different ecophanes are transplanted into the same habitat these differences disappear (4).

Ecotone. Transitional zone between two vegetational types or vegetational regions (4).

Ecotype. A population of plants that has become genetically differentiated in response to the conditions of a particular habitat. The plants may vary in growth habit, maturity, and other characteristics such as pubescence and flower color. Sometimes referred to as a geographical race (4,5,8).

Emulsifying agent. A surface active material that facilitates the suspension of one liquid in another (11).

Emulsion. The suspension of one liquid as minute globules in another liquid; for example, oil dispersed in water (11).

Epidemiology. Increased growth on the upper surface of a plant organ or part (especially leaves) that causes it to bend downward (11).

Exotic. A term describing an organism introduced from another country or continent.

Field evaluation planting. Plot or row plantings of one or more species or accessions established at locations selected to represent soil, climate, or other conditions not represented on the plant materials center. Initial, advanced, and cultural evaluations may be performed. They are generally the responsibility of the plot manager and must be approved by the state conservationist in the state where the planting is made.

Field planting. The final evaluation of a promising new or improved plant or method under actual use conditions and in comparison to a standard variety or method under a variety of soil, climate, and land-use conditions. They should be of a size that permits normal use and management within the framework of the conservation plan of the cooperant.

Field-scale increase. The reproduction of plant materials for use in field plantings and by cooperating agencies to obtain the final data needed to determine the feasibility of a variety release.

Film seed. Durable seed, other than hard seed, that neither germinate nor decay during a prescribed test period under prescribed test conditions. Film seed may be alive or dead (10).

Forb. An herbaceous plant that is not a grass, sedge, or rush (1).

Freeze-free period. The period, number of days, or both between the last frost in spring and the first frost in fall.

Genotype. The genetic constitution of an individual or group of plants. Individual plants may vary in appearance (phenotypically), but they must have the genetic characteristics of the genotype (1).

Germination. The initiation of growth by the embryo and development of a young plant from seed (9).

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CAN plants (Crassulacean Acid Metabolism). Species whose photosynthetic pathway primarily involves fixation of carbon dioxide during the dark period. Includes desert succulent plants such as cactus and cholla. Seed moisture and temperature conditions, carbon fixation may occur in the light via either C-3 or C-4 pathways. Generally the least productive of the three photosynthetic pathways (12).

Plant Variety Protection Act (PVP). Approved December 23, 1970, the PVP Act offers legal protection to developers of new varieties of plants that reproduce sexually, that is, through seed. Developers of plants that reproduce asexually have received protection from the U.S. Patent Office since 1930. The law states that protection will be extended to a "novel variety" if it has these three qualifications:

Distinctness -- The variety must differ from all known prior varieties by one or more identifiable morphological, physiological, or other characteristic.

Determinability -- If any variations exist in the variety, they must be describable, predictable, and commercially acceptable.

Stability -- When sexually reproduced, the variety must remain unchanged in its essential and distinctive characteristics to a degree expected of similarly developed varieties.

Polycross. Open-pollination of a group of genotypes (generally selected) in isolation from other compatible genotypes in such a way that each of the original selections has an equal opportunity of pollinating, or being pollinated by, any of the others (1,5).

Postemergence. After emergence of specified weed or crop (11).

Preemergence. Before emergence of specified weed or crop (11).

Preplanting. Any time before the crop is planted (11).

Project plans. Documents that identify the problem, define the objective, and outline a course of action for each project. They are as detailed as practicable and are supplemented as changes or additions are needed.

Pure line. Succession of generations of organisms homozygous for all genes (1,5).

Pure live seed (PLS). The product of the percentage of germination plus the hard seed and the percentage of pure seed divided by 100 (10).

Purity. The name or names of the kind, type, or varieties and the percentage or percentages thereof, the percentage of other agricultural seed or crop seed; the percentage of weed seed, including noxious weed seed, the percentage of inert matters, and the names of the noxious weed seed and the rate of occurrence of each (10).

Race. A term sometimes used to denote ecotypes.

Reciprocal cross. A second cross involving the same characters as the first but with the sex of the parents interchanged (1,5).

Viscible liquids. Two or more liquids capable of being mixed; they will remain mixed under normal conditions (11).

Mixture. More than one kind of seed or variety; each is present in excess of 5 percent of the whole (10).

Monocotyled. Scandinate and plantlike flowers borne separately on the same plant (1).

Native plant. A species that is part of an area's original flora. To be meaningful the area must be defined.

Naturalized plant. A plant introduced from other areas that has become established in and more or less adapted to a region by long, continued growth there (2).

Nonselective herbicide. A chemical that is toxic to plants, generally without regard to species (11).

Noxious weed. A weed arbitrarily defined by law as being especially undesirable, troublesome, and difficult to control. Definition varies according to legal interpretations (11).

Nurse crop. See companion crop (3).

Perennial. A plant that lives more than 2 years (11).

Phenology. A branch of science dealing with the relationship between climate and periodic biological phenomena. Also dates or sequence of occurrence of different growth stages of plants.

Phenotype. The appearance of an individual contrasted with its genetic makeup or genotype. A group of individual plants may appear alike (phenotypically) but not have the same genotype, or they may vary in appearance and have the same genotype (1).

Photosynthesis.

C-3 plants. Species having a photosynthetic pathway which results in 1-carbon compounds as initial products of photosynthesis. Includes most legumes, forbs and cool season grasses, as well as most trees and shrubs. Usually significantly less efficient users of soil and water nitrogen than are C-4 plants. Optimum temperature for photosynthesis and growth is 18 to 25° Centigrade (64 to 77° Fahrenheit).

C-4 plants. Species having a photosynthetic pathway which results in 2-carbon compounds as initial products of photosynthesis. Includes most warm season grasses, tropical grasses, a few forbs and at least one shrub. Usually significantly more efficient users of soil nitrogen and water than are C-3 plants. Total biomass production generally substantially greater than plants with other photosynthetic pathways. Optimum temperature for photosynthesis and growth is in the range of 37 to 55° Centigrade (94 to 77° Fahrenheit).

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Standard plant. The commonly used species or, if available, variety for the use for which an evaluation is being made; serves as the standard for comparison.

Strain. Defined in the paper "Crop Terminology Today" as a group of organisms of common origin having one or more definite morphological or physiological characteristics that are heritable. Also, a term to include breed differences within a species or subspecies of plants differing little, if any, in morphology but physiologically distinct in some additional quality such as yield or vigor; i.e., the northern and southern strains of smooth brome. "Strain" also means variety, ecotype, biotype, type, or a group of these (1).

Surfactant. A material that facilitates and accentuates the emulsifying, dispersing, spreading, wetting, and other surface-modifying properties of herbicide formulation (11).

Suspension. A system consisting of very finely divided solid particles dispersed in a solid, liquid, or gas (11).

Synergism. Cooperative action of different chemicals or organisms such that the total effect is greater than the sum of the independent effects (11).

Synthetic variety. Advanced generation progenies of a number of clones or lines (or of hybrids among them) obtained by open-pollination (1,3,5).

Testcross. A cross of a double or multiple heterozygote to the corresponding multiple recessive to test for homozygosity or linkage (1).

Tetraploid. An organism having four basic sets of chromosomes (1).

Tolerant progeny. Progeny from outcrossed seed of selections, clones, or lines crossed with a single variety or line that serves as a common pollen parent (1).

Translocated herbicide. An herbicide that is moved within the plant from the point of entry (11).

Type. A group of varieties so nearly similar that the individual varieties cannot be distinguished except under special conditions. For further information, see Rules and Regulations under the Federal Seed Act (10).

Use groups. The artificial grouping for the comparative testing of plant materials having similar uses.

Variety. See cultivar.

Warm-season plant. A plant that completes most of its growth during the warm part of the year, generally late in spring and in summer.

Reclamation. The process of reconverting land to its former or other productive uses (2).

Recovery. The rate or amount of regrowth following harvesting of a forage species or following a dormant season.

Recurrent selection. A method of breeding designed to concentrate favorable genes scattered among a number of individuals by selecting in each generation among the progeny produced by matings later in the selected individuals of the previous generation (1).

Registered variety. A variety accepted, numbered, and registered as a recognized landrace and variety by the Committee on Varietal Standardization and Registration of the Crop Science Society of America (7).

Rehabilitation. Return of land to a form and productivity that conforms with a prior land use plan, including a stable ecological state that does not contribute substantially to environmental deterioration and is consistent with surrounding aesthetic values (2).

Released variety. A new variety of proved value that is made available to the public, according to ESCOP standards, for a conservation purpose.

Restoration. The process of restoring site conditions as they were before land disturbance (2).

Seed certifying agency. General term for the Crop Improvement Association, Seed Growers Association, or other agencies or institutions with designated responsibility for the release and certification of crop varieties. Most state agencies are members of the Association of Official Seed Certifying Agencies (AOSCA).

Seed lot. A definite quantity of seed identified by a lot number, every portion or bag of which is uniform, within permitted tolerances, for the factors that appear on the labeling (2).

Selection. Selecting an accession or accessions from an assembly, or individuals from within an accession, to obtain the plants having the best characteristics for a particular conservation use.

Selective herbicide. A chemical that is more toxic to some plant species than to others (11).

Soil application. Chemical applied mainly to the soil surface rather than to vegetation (11).

Soil incorporation. Mechanical mixing of a chemical with the soil (11).

Soil injection. Mechanical placement of a chemical beneath the soil surface with a minimum of mixing or stirring (11).

Soil sterilants. An herbicide that prevents the growth of plants when present in the soil. Soil sterilization effects may be temporary or permanent (11).

Stand. A population of plants. Density of population or number of individuals per unit area.

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§542.4 Nomenclature.

SCIENTIFIC NAMES -- NATIONAL LIST OF SCIENTIFIC PLANT NAMES (NLSN)

The NLSN contains an alphabetical list of scientific plant names, along with symbols, from selected plant manuals. These names and symbols are consistent with those in the International Code of Botanical Nomenclature.

SCS is to use the NLSN in all official activities requiring the use of scientific plant names and symbols.

The NLSN is updated periodically.

CULTIVAR NAMES

Cultivar names are to be used in accordance with the International Code of Nomenclature for Cultivated Plants, dated 1969.

COMMON NAMES

Some States have issued publications containing the common names of selected plants. These publications, in addition to recognized regional publications, can be used as references. Other references for common names include

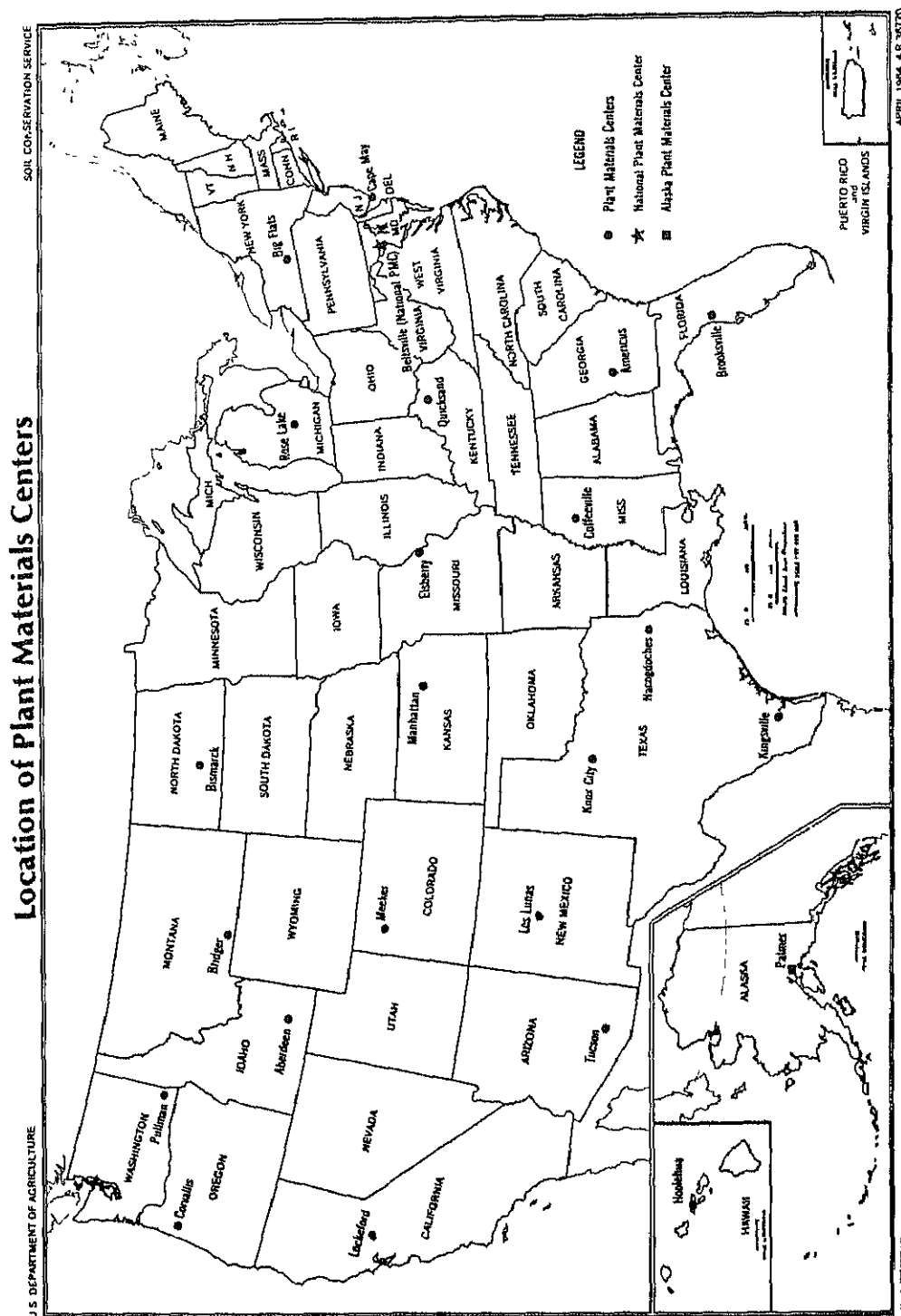
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§542.3 cont.



§542.5 Location of plant materials centers

542.6

Checklist for Developing a Training Plan for PMC Managers
and Soil Conservationists (Plant Materials Center)

Training Needs

- a. Administration
 1. Procurement
 2. Property, inventory, and reassignment
 3. Contracts and agreements; property and space
 4. Budget
- b. Personnel
 1. Employment — VAE, WB, permanent, part-time
 2. Standards of performance and description of duties
 3. Training and safety
- c. Operations
 1. Assignment of responsibility for equipment
 2. Five-year plan for replacement or procurement
 3. PMC seasonal work obligations, fertilizing, planting, harvesting, seed cleaning, shipments
 4. PMC conservation plan
- d. Program orientation
 1. National Plant Materials Manual and National IBM User Handbook
 2. Evaluation of objectives and direction of PMC activities
 3. PMC long-range program, APO, project plans and shipments, and state long-range programs, NCP objectives and priorities
 4. State(s) policy and memorandums
 5. PMS field planting reports from states served
 6. PMC reports
 7. PMC appraisal mechanism and formats
 8. Cultivar release mechanism and formats
 9. Correspondence and reference files
 10. Memorandums of understanding and other agency cooperation
 11. Orientation with other disciplines —
 - (1) Agronomy
 - (2) Range
 - (3) Soils
 - (4) Woodland
 - (5) Biology
 12. Information program
- e. Additional offcenter training
 1. Field evaluation plantings
 2. Review of selected field plantings with PMS and other field specialists
 3. AC and DC conferences
 4. Interdisciplinary Plant Science Course, Nebraska, or similar course
 5. Cooperation and working relationships with other federal and state agencies.

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(190-V-NPMM, August 1984)

Checklist for Developing a Training Plan
For Biological Technicians (Plant Materials Center)

Training Needs

- a. Program orientation
 1. National Plant Materials Manual and exhibits
 2. Interdisciplinary input and knowledge
 3. Purpose of plant materials program
 4. Review of PMC's plant releases
 5. APO, annual reports, long-range program
 6. Project plans and shipments
 7. Schedule of operations
- b. Operations
 1. Operation and maintenance of equipment
 2. Planting rates, irrigation requirements, fertilization program, cultivation, harvesting (Obm, NW), seed drying, seed cleaning, seed storage, inventory, and shipping
 3. Plant propagation, culture, digging, storage, and shipment
 4. Insect identification and control
 5. Special study responsibilities, advanced studies, field evaluations
 6. Pesticide use, storage, study
- c. Records, reports, administration, management
 1. Accessioning, inventory, seed cleaning, shipments
 2. Evaluation notes, purpose, method
 3. VAE — employment, time keeping, and scheduling
 4. Procurement — methods and limitations
 5. Personnel — appraisal, awards, training, supervision
 6. Safety — responsibilities, meetings, awareness
- d. Supplemental training
 1. Seed Cleaning and Processing, Short Course, Mississippi State University
 2. Plant classification and identification
 3. Field orientation in areas served by center
 4. Complete requirements to become certified pesticide applicator
 5. Review reference materials
 6. Conducting tours and individuals through center
 7. Training at other PMC's

\$542.6 Checklist for developing a training
plan for PMC managers and soil
conservationists (plant materials center)

\$542.7 Checklist for developing a training
plan for biological technicians
(plant materials center)

Part 542- Exhibits

\$542.8 Accountable property inventory

ACCOUNTABLE PROPERTY INVENTORYFEBRUARY, 1983

Item No.	Property Number	Description of Article	Year Purchased or Model Year	Present Condition	Life Expectancy*	1983 Recommended Action/Costs
<u>AUTOMOBILES</u>						
1	719957-SCS	Automobile: 1981 Dodge D-50, 1/2 Ton Pickup	04/10/81	Excellent	1991	-
2	719958-SCS	Automobile: 1981 Dodge D-50, 1/2 Ton Pickup	04/10/81	Excellent	1991	-
3	669133-SCS	Automobile: 1959 Chevrolet 2 1/2 Ton Dump Truck	1959	Fair	1991 *	Replace from surplus property
4	714865-SCS	Automobile: 1978 Dodge 3/4 Ton Pickup	05/31/78	Excellent	1990	Purchase cross mount tool box
5	714871-SCS	Automobile: 1978 AMC Concord Sedan	07/14/78	Good	1988	-
<u>BUILDINGS</u>						
6	61231-SCS	Building: Equipment shed and shop, 96' x 25'	08/17/55	Fair	1990	Paint entire building outside
7	679698-SCS	Building: Skid mounted portable building, 10' x 20' x 7'	05/22/73	Good	1998 *	-
8	710968-SCS	Building: Skid mounted portable building, 10' x 20'	10/13/77	Good	1983 *	-
9	699780-SCS	Building: 'Orlyt' greenhouse	10/01/75	Good	2000	-
10	702729-SCS	Building: FMC office, 148' x 25'	05/04/76	Excellent	2016	-
<u>FUEL STORAGE FACILITIES</u>						
11	708606-SCS	Tank: 2000 gallon gasoline storage tank with fuel pump	06/27/75	Good	2005 *	-
12	699736-SCS	Tank: 2000 gallon diesel fuel storage with fuel pump	06/27/75	Good	2005 *	-
<u>COMMUNICATIONS EQUIPMENT</u>						
13	655780-SCS	Radio: Two way base station	09/12/67	Good	1988 *	-

Item No.	Property Number	Description of Article	Year Purchased or Model Year	Present Condition	Life Expectancy*	1983 Recommended Action/Costs
69	36673-SCS	Tractor: 'Massey Ferguson' T0-35 Agri. tractor	01/11/61	Fair	1991 *	-
70	175765-SCS	Tractor: 'Massey Ferguson' T0-35 Agri. tractor	11/27/61	Fair	1991 *	-
71	685661-SCS	Tractor: 'John Deere' model 2630A Agricultural tractor	05/23/75	Good	1995 *	May need batteries
<u>HARVESTING EQUIPMENT</u>						
72	699777-SCS	Combine: 'John Deere' model E4400	09/19/75	Good	1995	-
<u>CULTIVATION EQUIPMENT</u>						
73	36676-SCS	Cultivator: 'Massey Ferguson' stiff shank	01/11/61	Good	1991	-
74	665630-SCS	Cultivator: 'Ferguson' rotary tillage	06/05/70	Good	2000 *	-
<u>FERTILIZER AND LIME SPREADING EQUIPMENT</u>						
75	679691-SCS	Distributor: 'Gandy' pull type	03/30/73	Good	1998 *	-
76	708606-SCS	Spreader: 'John Deere' model 602 spin spreader	03/14/75	Good	1995 *	-
<u>FIELD PREPARATION EQUIPMENT</u>						
77	685632-SCS	Disk: 8' 'Bushhog' disk harrow (cylinder lift)	03/19/75	Good	2005 *	-
78	191442-SCS	Harrow: 'John Deere' 8' disk harrow, cylinder lift	06/04/63	Fair	1993 *	-
79	36669-SCS	Harrow: 6' 'Poplarville' 3 point lift disk harrow	12/30/60	Good	1991 *	-
80	669106-SCS	Harrow: 'John Deere' finishing harrow (Do-all)	04/29/71	Fair	2001 *	Replace blades, axles, blade cost \$225.00
81	669110-SCS	Plov: 'Massey Ferguson' model 1126 chisel plov	05/21/71	Good	2001 *	-
82	648306-SCS	Plov: 'Massey Ferguson' model 66 moldboard plov	09/13/65	Good	1995	-
<u>PLANTING EQUIPMENT</u>						
83	684381-SCS	Spring Planter: 'Bermuda King'	12/6/80	Excellent	1984 *	-
84	679550-SCS	Planter: 'John Deere' model 247, 2 row planter	05/29/73	Good	2003 *	-

542.9

§542.9 File Outline for Black-and-White Photos and Color Slides.

This outline can be altered and expanded to fit local needs.

a. Individual plants -- file alphabetically by species name

1. Forbs (except legumes and ground covers)

- (1) A -- E
- (11) F -- J
- (111) K -- O
- (1111) P -- T
- (11111) U -- Z

2. Grasses

- (1) A -- E
- (11) F -- J
- (111) K -- O
- (1111) P -- T
- (11111) U -- Z

3. Legumes

- (1) A -- E
- (11) F -- J
- (111) K -- O
- (1111) P -- T
- (11111) U -- Z

4. Trees

- (1) A -- E
- (11) F -- J
- (111) K -- O
- (1111) P -- T
- (11111) U -- Z

5. Shrubs (except vines, hedges, windbreaks, and screens)

- (1) A -- E
- (11) F -- J
- (111) K -- O
- (1111) P -- T
- (11111) U -- Z

6. Ground covers and vines

- (1) A -- E
- (11) F -- J
- (111) K -- O
- (1114) P -- T
- (11141) U -- Z

File Outline (cont.)

b. PMC operations

- 1. Collection
- 2. Initial evaluations
- 3. Advanced testing
 - (i) Advanced at PMC
 - (ii) Advanced at field
 - (iii) Advanced off center
- 4. PMC plant and seed increase
- 5. Commercial increases
- 6. Personnel, buildings, grounds
- 7. Equipment

c. Problems, plants, and PM uses

- 1. Sand dune stabilization
- 2. Mine spoil revegetation
- 3. Warm- and cool-season pasture and hay
- 4. Streambank stabilization
- 5. Wildlife habitat stabilization
- 6. Wildlife food and cover
- 7. Ornamental ground cover
- 8. Roadbanks, cuts, fills, stabilization
- 9. Windbreaks, hedges, and screens
- 10. Reforestation
- 11. Cover crops
- 12. Waterways and diversions

d. Miscellaneous

- 1. General farming
- 2. Hayries
- 3. Wetlands
- 4. Training -- forms and procedures
- 5. Recreation
- 6. Scenic beauty

§542.9 File outline for black-and-white
photos and color slides

\$542.10 Preliminary program analysis

PRELIMINARY PROGRAM ANALYSIS

AMERICUS PHC

AMERICUS, GEORGIA

PRIORITY INDEX

1. Reduce excessive soil erosion
 - Cropland Erosion Control
 - Disturbed Areas - (Critical erosion-prone areas devoid of vegetation) (i.e. Hilland, Roadbanks, Urban erosion problems)
 - Gullies
2. Improvement of pasture and forest land
 - Pasture Improvement
 - Forest land
3. Reduce upstream flood damage
 - Off-site damages - Sediment and
 - On-site erosion control - Channels
 - Structures
4. Improvement of water management at
5. Improvement of fish and wildlife

542.10

INITIAL EVALUATION

NCP PRIORITY	PROJECT	PROJECT NUMBER	NUMBER OF PLANT ACCESSIONS				
			1983	1984	1985	1986	1987
1	<i>Alnus glutinosa</i>	131081D	55	55	55	55	55
1	<i>Arachis</i> spp	131047R	28	28			
2	<i>Andropogon</i> sp	131072C	5				
2	<i>Dichanthium</i> spp	131089R	5	5			
2	<i>Festuca arundinacea</i>	131062R	40	40	40		
2	<i>Itanarthria altissima</i>	131085R	8	8	8		
1	<i>Lupinus</i> spp	131095H	141	141	141	141	
1	<i>Malus</i> spp	131030K	42				
1	<i>Paspalum</i> spp	131051E	4	4	4		
1	<i>Paulownia tomentosa</i>	131082D	24	24	24	24	24
1	<i>Pennisetum</i>	131098D	6	6	6		
2	<i>Sorghastrum nutans</i>	131073L	87				
2	<i>Sporobolus polireti</i>	131088G	1 Proj	1 Proj	1 Proj		
1	<i>Tiifolium</i> spp	131094H	109	109	109	109	
1	<i>Vicia</i> spp	131096H	220	220	220	220	
1	<i>Medicago</i>	131097H	79	79	79	79	79
	Unknown				100	100	100
Total accessions			851	720	706	720	258

ADVANCED EVALUATIONS

NCP PRIORITY	PROJECT	PROJECT NUMBER	PLOTS/PROJECT				
			1983	1984	1985	1986	1987
2	<i>Sorghastrum nutans</i>	PQ1 QU2 Pe3 Se4 Sp5		36 36 108 18 36	36 36 108 18 36	36 36 108 18 36	
1	<i>Spartina patens</i>	13A092E 13A093E	240	240 42	42	42	
1	<i>Elymus virginicus</i>	PQ1 QU2 Se3 PD4 ST5		27 27 18 72 36	27 27 18 72 36	27 27 18 72 36	
2	<i>Paspalum nicotiae</i>	IVMD Forage Qlty Forage Production 13A090R 13A091R		36 36 12 2	36 36 12 2	36 36 12 2	
1	<i>Arachis</i>	13A099R 13A100R Nitrogen Fix. Root Penetration	207 207	207 207	207 207 75 15	75 75 15	75 75 15
1	<i>Coronilla varia</i>	Tolerance Clip Rate Spread Dt. Planting Seed Prod. Conserv Tillage		27 6 108 3 12	27 6 108 3 12	27 6 108 3 12	3 3 12
5	<i>Elaeagnus umbellata</i>	13A040J	3	3	3	3	3
1	Interseeding legumes	13A086G	54	54	54	54	
2	<i>Serecia</i> (low tannin)	13A087G	80	80	80		

KEY TO PROJECT NUMBERS:

PQ1 = Forage Quantity
 QU2 = Forage Quality
 Pe3 = Persistence under clipping
 Se4 = Seed production

Sp5 = Spread by tillers
 PD4 = Planting date & depth
 ST5 = Shade tolerance study
 P = Plants

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(190-V-NPMM, August 1984)

FIELD INCREASE PLANTINGS ACRES/LBS SEED							
NCP PRIORITY	SPECIES	PI NUMBER	1983	1984	1985	1986	1987
1	Indigofera pseudotinctoria	198015	5/800	5/800	5/800		
1	Lespedeza virgata	210004	5/1000	5/1000	5/1000	5/1000	
5	Panicum milleaceum	Dove		2/1000		2/1000	
2	Paspalum nigrorae	310131	1/280	1/280	1/280		
2	Paspalum nigrorae				20/0	20/5600	20/5600
1 or 5	Aztec max sunfl.	Aztec	2/60	2/60	2/60		
3	Spartina patens	434408 Plants			10000p	10000p	10000p
3	Spartina patens	415138 Plants			10000p	10000p	
3	Spartina patens	422110 Plants			10000p	10000p	
1	Coronilla varia	T01957	Pkt	1/10	10/25	10/1000	10/1500
3	Paspalum monostachyum	422022		1/10	1/100	1/200	
2	Sorghastrum nutans					1/50	5/1000
1	Elymus virginicus					1/50	5/700
1 & 2	Arachis sp (Perennial)						2/6008
1 & 2	Lespedeza cuneata	Appalow	1/50	5/800	5/800	5/800	
1	Trifolium vesiculosum	Anclo			2/500		2/500
5	Arachis sp (Annual)			NO HARVEST TO BE MADE			
3	Nyssa ogeche	Plants		1000	2000		
5	Lespedeza thunbergii	434098	1/25	1/50	1/150	1/200	
1	Myrica carifera	Plants	1000p	2000	2000	2000	
3	Amorpha fruticosa	Plants	500p	1000	1000	1000	
3	Salix caorea	434284			500	500	
	Salix humilis	T04886 plants					

NOTE: 7/800 = AC/Pounds
2 plants = 1# seed
P = Plants

WORKLOAD ANALYSIS
1983 Fiscal Year
Levels of funding

Priority 1 - Reduce excessive soil erosion

	No. of accessions	Level 1 Manhours	No. of accessions	Level 2 Manhours						
	T	S	L	Total	T S L Total					
<u>Initial Evaluations</u>										
Alnus glutinosa	55	110.0	198.0	132.0	440	55	110.0	198.0	132.0	440
Arachis spp	28	56.0	100.0	67.2	224	28	56.0	100.0	67.2	224
Lupinus spp	141	282.0	507.6	330.4	1120	141	282.0	507.6	330.4	1120
Malus spp	42	84.0	151.2	100.8	336	42	84.0	151.2	100.8	336
Medicago spp	79	158.0	284.4	189.6	632	79	158.0	284.4	189.6	632
Paspalum sp	4	8.0	14.4	9.6	32	4	8.0	14.4	9.6	32
Paulownia tomentosa	24	48.0	86.4	57.6	192	24	48.0	86.4	57.6	192
Pennisetum spp	6	12.0	21.6	14.4	48	6	12.0	21.6	14.4	48
Trifolium spp	80	160.0	288.0	192.0	640	109	218.0	392.4	261.6	872
Vicia spp						220	440.0	792.0	528.0	1760
Total manhours		918.0	1652.4	1101.6	3672		1416.0	2548.8	1699.2	5664
<u>Advanced Evaluations</u>										
	No. Plots									
Arachis spp										
Project 13A099R	207	351.9	662.4	289.8	1304.1	207	351.9	662.4	289.8	1304.1
Project 13A100R	207	351.9	662.4	289.8	1304.1	207	351.9	662.4	289.8	1304.1
Legume interseeding in bahiagrass	54	91.8	172.8	75.6	340.2	54	91.8	172.8	75.6	340.2
Spartina patens Project 13A092E	240	408.0	768.0	336.0	1512.0	240	408.0	768.0	336.0	1512.0
Total manhours		1203.6	2265.6	991.2	4460.4		1203.6	2265.6	991.2	4460.4

Part 542- Exhibits

542.10

Seed and Plant Production										
		I	S	L	Total		I	S	L	Total
Coronilla varia	Pkt	17	1 0	67	1 84	Pkt	17	1 0	67	1 84
Helianthus maximiliani	2/60	10 2	60 0	40 2	110 4	2/60	10 2	60 0	40 2	110 4
Indigofera pseudotinctoria	5/800	136 0	800 0	536 0	1472 0	5/800	136 0	800 0	536 0	1472 0
Lespedeza cuneata	1/50	8 5	50 0	33 5	92 0	1/50	8 5	50 0	33 5	92 0
Lespedeza virgata	5/1000	170 0	1000 0	670 0	1840 0	5/1000	170 0	1000 0	670 0	1840 0
Paspalum conjugatum	--									
Total		409 87	2411 0	1615 37	4436 24		409 87	2411 0	1615 37	4436 24

Priority 1 Summary										
Level 1 Funding										
Initial Evaluations		910 0	1652 4	1101 6	3572					
Advanced Evaluations		1203 6	2265 6	991 2	4460 4					
Seed & Plant Production		409 87	2411 0	1615 37	4436 24					
Total manhours		2531 47	6329 0	3708 17	12568 64					
Funds		\$30,377 64	\$50,632 00	\$29,665 36						
Total funds					\$110,675 00					
% Total manhours		79.4								
Level 2 Funding										
Initial Evaluations		1416 0	2548 8	1699 2	5664 0					
Advanced Evaluations		1203 6	2265 6	991 2	4460 4					
Seed & Plant Production		409 87	2411 0	1615 37	4436 24					
Total manhours		3029 47	7225 4	4305 77	14564					
Funds		\$36,353 64	\$57,803 20	\$34,446 16						
Total funds					\$128,603					
% Total manhours		81.7								

WORKLOAD ANALYSIS 1983 Fiscal Year Levels of Funding										
Priority 2 - Improvement of pasture and forest land										
	No. of accessions	Level 1 Manhours				No. of accessions	Level 2 Manhours			
		I	S	L	Total		I	S	L	Total
<u>Initial Evaluations</u>										
Andropogon maritimus	5	10 0	18 0	12 0	40	5	10 0	18 0	12 0	40
Blechnum spp	5	10 0	18 0	12 0	40	5	10 0	18 0	12 0	40
Festuca arundinacea	40	80 0	144 0	96 0	320	40	80 0	144 0	96 0	320
Hemarthra altissima	8	16 0	28 8	19 2	64	8	16 0	28 8	19 2	64
Sporobolus polirelli	1	2 0	3 6	2 4	8	1	2 0	3 6	2 4	8
Sorghastrum nutans	87	174 0	313 2	208 8	696	87	174 0	313 2	208 8	696
Total manhours		292 0	525 6	350 4	1168		292 0	525 6	350 4	1168
<u>Advanced Evaluations</u>										
Lespedeza spp										
- Project 13A0876	80	136 0	256 0	112 0	504 0	80	136 0	256 0	112 0	504 0
Paspalum nicotian										
- Project 13A0908	12	20 4	38 4	16 8	75 6	12	20 4	38 4	16 8	75 6
- Project 13A0918	2	3 4	6 4	2 8	12 6	2	3 4	6 4	2 8	12 6
Total manhours		159 8	300 8	131 6	592 2		159 8	300 8	131 6	592 2
<u>Seed and Plant Production</u>										
	<u>Quantity</u>					<u>Quantity</u>				
Paspalum nicotian	1/280	47 6	280 0	187 6	515 2	1/280	47 6	280 0	187 6	515 2
Total manhours		47 6	280 0	187 6	515 2		47 6	280 0	187 6	515 2

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Priority 2 Summary

Levels 1 and 2 Funding are the same

	I	S	L	Total
Initial Evaluations	292.0	525.6	390.4	1168.0
Advanced Evaluations	159.8	360.0	131.6	592.2
Seed and Plant Production	47.6	280.0	107.6	515.2
Total manhours	499.4	1106.4	669.6	2275.4
Funds	\$5092.80	\$8851.20	\$5366.80	
Total funds				\$20,290.80
Level 1 % Total manhours	14.3			
Level 2 % Total manhours	12.8			

WORKLOAD ANALYSIS
1983 Fiscal Year
Levels of Funding

Priority 3 -- Reduce upstream flood damage

Seed and Plant Production	Level 1					Level 2				
	Quantity	Manhours				Quantity	Manhours			
		I	S	L	Total		I	S	L	Total
Amorpha fruticosa	500	42.5	250.0	167.5	460	500	42.5	250.0	167.5	460
Arundo donax	500	42.5	250.0	167.5	460	500	42.5	250.0	167.5	460
Nyssa ogeche	--									
Total manhours		85.0	500.0	335.0	920		85.0	500.0	335.0	920

Priority 3 Summary

Levels 1 and 2 Funding are the same

Initial Evaluations	0	0	0	0	
Advanced Evaluations	0	0	0	0	
Seed and Plant Production	85.0	500.0	335.0	920	
Total manhours	85.0	500.0	335.0	920	
Funds	\$1020.00	\$4000.00	\$2680.00		
Total funds					\$7700.00
Level 1 % Total manhours	5.8				
Level 2 % Total manhours	5.1				

Part 542- Exhibits

542.10

WORKLOAD ANALYSIS 1983 Fiscal Year Levels of Funding												
Priority 5 - Improvement of fish and wildlife habitat												
Advanced Evaluations	No of accessions		Level 1 Manhours			Total	No of accessions		Level 2 Manhours			Total
	T	S	L		T		S	L				
Elaeagnus umbellata - Project 13A0403	3	5.1	9.6	4.2	18.9	3	5.1	9.6	4.2	18.9		
Total Manhours		5.1	9.6	4.2	18.9		5.1	9.6	4.2	18.9		
Seed and Plant Production		Quantity				Quantity						
Lespedeza thunbergii	1/25	4.25	25.0	16.75	46.0	1/25	4.25	25.0	16.75	46.0		
Total manhours		4.25	25.0	16.75	46.0		4.25	25.0	16.75	46.0		
Priority 5 Summary												
Levels 1 and 2 Funding are the same												
Initial Evaluations		0	0	0	0							
Advanced Evaluations		5.1	9.6	4.2	18.9							
Seed and Plant Production		4.25	25.0	16.75	46.0							
Total manhours		9.35	34.6	20.95	64.9							
Funds		\$112.20	\$276.00	\$167.60								
Total funds					\$556.60							
Level 1 % Total manhours		.5										
Level 2 % Total manhours		36										

SUMMARY 1983 Fiscal Year									
Level 1 Funding					Level 2 Funding				
Total Man-hour Requirements					Total Man-hour Requirements				
Priority	Percent	Man-hours	Man-years		Priority	Percent	Man-hours	Man-years	
1	79.4	12568.4	6.04		1	81.7	14560.6	7.0	
2	14.3	2275.4	1.09		2	12.8	2275.4	1.09	
3	5.8	920.0	.44		3	5.1	920.0	.44	
5	.5	64.9	.03		5	.4	64.9	.03	
T		3065.87	1.47		T		3173.8	1.5	
S		7935.40	3.81		S		8866.4	4.3	
L		4712.77	2.27		L		5331.3	2.6	
Budgeted Needs by Priority					Budgeted Needs by Priority				
Priority	Funds Needed				Priority	Funds Needed			
1	\$147,275.00				1	\$164,138.00			
2	20,500.00				2	26,229.00			
3	9,425.00				3	9,630.00			
5	800.00				5	1,258.00			
	\$178,000.00					\$201,255.00			
Non-recurring funds for equipment	30,000.00				Non-recurring funds for equipment	30,000.00			
	\$208,000.00					\$231,000.00			

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Salary Rates Used Average

T (PMC Mgr and S.C.)	\$12.00
S (Biological Tech.)	8.00
L (Labor)	8.00

Staff output, including overhead (manhours) 1

	<u>T</u>	<u>S</u>	<u>L</u>
Initial Evaluation	2.0	3.6	2.4
Advanced Evaluation	1.7	3.2	1.4
FSI for Final Eval.	.17	1.0	.67

1 Including leave, training, administration, maintenance,
routine PMC operations, etc.

Staff: Technical, T = PMC Manager, Soil Conservationist
Support, S = Clerical, Biological Tech., Tractor Drivers
and other full time personnel
Labor, L = NAE, and other part time personnel

542.11

PROCEDURE

1. Identify the plant material problems in your state. Identify each by number, on Worksheet 1, Column 1. They must be specific and relate to plant materials.
2. Determine the relative importance of each plant material problem compared to all plant material problems in your area or nation. Consider the size and complexity of each problem relative to other problems in your state. Use 1 = those having the least relative importance; 9 = those having the most relative importance. This information goes in column 3.
3. Objectively evaluate the status of knowledge of each problem compared to all other problems. This is where we distinguish between "what is a plant material problem or the lack of use of known solutions" Use 1 = high status of knowledge; 9 = low status of knowledge. This information goes in column 4.
4. Columns 5 through 7 are the national conservation objectives and concerns (except item 3) discussed above. Record in the block under each objective or concern what you think the impact of solving each plant material problem will have on realizing each objective or concern. Use 3 = no impact; 1 = little or no impact; 9 = major impact.
5. Using this data, compute a score as indicated below for each problem and enter in column 8.

$$\text{SCORE} = \text{RELATIVE IMPORTANCE}(\text{Col 3}) \cdot \text{STATUS OF KNOWLEDGE}(\text{Col 4}) + (\text{Col 5} + \text{Col 6} + \text{Col 7} \times 2) + (\text{Col 8} + \text{Col 9} + \text{Col 10} + \text{Col 11} + \text{Col 12} + \text{Col 13})$$

The multipliers 3, 2, 1 are used to denote the different priority levels of conservation objectives and concerns, as set forth in "National Program for Soil and Water Conservation" (USDA, 1982) and discussed above.

6. The relative score can be used to indicate priority.

\$542.11 Instructions for Determining Priority of Plant Material Problems Relative to the National Conservation Program.

USDA has identified six long-term national conservation objectives. They are:

1. Reduce excessive soil erosion by helping landowners apply and maintain conservation systems on nonfederal agricultural lands that are eroding excessively, and by helping them maintain systems on lands now adequately protected.
2. Improve irrigation efficiency by increasing the efficiency of farm water use and of conveyance systems.
3. Improve water management by supporting states that modernize water-rights laws, and by increasing the reliability of agricultural water supplies.
4. Reduce upstream flood damage through structural and nonstructural methods—with the emphasis on nonstructural methods.
5. Improve range condition by reducing excessive erosion and emphasizing rangeland management systems.
6. Improve water quality by applying knowledge gained through determining the relationship between soil erosion and water pollution and through evaluating alternative ways to reduce non-point-source water pollution.

The first national priority to guide USDA conservation activities for the years 1983 through 1987 is to reduce excessive soil erosion on crop, range, pasture, and forest lands. The second priority is twofold: to conserve water used in agriculture and to reduce flood damage in up-stream areas.

Local and state priorities can include the two national priorities and any of the following concerns of national significance:

- Improvement of range, pasture, and forage land;
- Improvement of water quality;
- Conservation and development of natural resources in urban areas and rural communities;
- Improvement of fish and wildlife habitat, and
- Management of organic wastes.

The enclosed worksheet is designed to evaluate the importance of plant material problems in a state or PWC service area relative to these conservation objectives and concerns.

\$542.11 Instructions for determining priority of plant materials programs relative to the National Conservation Program

542.12

3. Collection dates. September 4-7, 1979.

3. Collection sites. Two (2) to four (4) sites per county within the geographic area of collection. The number of sites is determined by the size of the county. Refer to project plan supplement listing states and number of sites per county.

4. Collection method.

a. Six (6) subsamples (6" x 6" x 9" deep) will be collected vegetatively at each site.

b. Site selection criteria. The intent is to get a broad genetic base of plant material. Therefore, attempt to get as diverse sampling as is practical when selecting superior little bluestem plants in the field. If a county has more than one major land resource area, collections should be made in each area. Collections should be from typical little bluestem areas and include: Natural grasslands (rangeland), rail roads, roadside right-of-ways. Avoid areas that may have been artificially seeded. Where possible, collections should come from diverse soil textural types, such as sandy and silty; or range site groupings such as: (1) Runoff sites represented by thin up-lands, shallow or other poorly developed sites, (2) Run-in sites represented by overflow, or subirrigated, (3) Normal upland sites represented by sandy, silty or clayey.

5. Transportation or samples:

a. Garbans, plastic bags, accession data sheets, and instructions for handling will be sent to each field office by the plant materials center in August.

b. PM Center personnel will pick up the garbans containing the samples at designated central locations within each administrative area on September 10-14, 1979.

6. Transplanting procedures:

a. Temporary storage and handling: The samples will be assigned accession numbers and placed in the greenhouse.

b. Each subsample will be transplanted into separate one-gallon containers and maintained under controlled greenhouse conditions prior to establishment in space-plant initial evaluation nursery.

SOIL CONSERVATION SERVICE
PLANT MATERIALS CENTER
BISMARCK, NORTH DAKOTA

PROJECT OUTLINE

Project 387016H

Project Title: Assembly and Evaluation of Little Bluestem, *Scirpus scoparium*

I. Introduction:

Little bluestem, *Scirpus scoparium* is a perennial, warm season bunchgrass with a deep fibrous root system. It is widely distributed throughout the central and northern United States. Its range extends from Quebec and New Brunswick in the north to Florida in the south. It occurs with other tall grass prairie species such as big bluestem, Indiangrass, and switchgrass, in the central Great Plains where moisture conditions are favorable; and with prairie sandreed, western cheagrass, green needle, needleandthread, sideoats grama and blue grama in the drier mixed grass prairie of the northern Great Plains.

II. Problem:

There is a need for an adapted variety of little bluestem for range seeding, surface mine reclamation, critical area planting, recreational area development and other conservation uses in North Dakota, South Dakota and Minnesota.

III. Objective:

The objective is to assemble, evaluate, develop and release cooperatively, an adapted variety and/or strains of little bluestem for conservation use in the following Major Land Resource Areas: 53B, 53C, 54, 55A, 55B, 55C, 56, 57, 58C, 58D, 60, 61, 62, 63, 64, 66, 69, 91, 102A, 102B, 103, 104, and 105.

IV. Literature Review:

Review literature and assemble published research studies on little bluestem.

V. Procedure:

A. Assembly:

1. Area of collection. Assemble vegetative material from adapted ecotypes throughout Minnesota, North Dakota and South Dakota Major Land Resource Areas: 53B, 53C, 54, 55A, 55B, 55C, 56, 57, 58C, 58D, 60, 61, 62, 63, 64, 66, 69, 91, 102A, 102B, 103, 104, and 105.

§542.12 PMC project plan

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5. Plant evaluation:
- Record plant performance, SCS-PW-60, Initial Observations Herbaceous Plant Performance.
 - Selection: 1980-85
Select accessions exhibiting superior seed and forage yield potential, disease resistance and other desirable agronomic characteristics.
 - Initial Seed Increase: 1985-89
 - Advanced Evaluation: 1989-94
An advanced evaluation project plan will be prepared to further evaluate forage and seed production at representative off-center field evaluation planting locations.

Soil Conservation Service

Prepared by:

Russell J. Hase
Russell J. Hase
Center Manager

Reviewed by:

James W. Carr
James W. Carr
State Resource Conservationist

Approved by:

Allen L. Fisk
Allen L. Fisk
State Conservationist

2. Initial Evaluation:
- Location: USDA, SCS, Plant Materials Center, Bismarck, ND in cooperation with the USDA, SEA, AR, Northern Great Plains Research Center, Mandan, ND.
 - Soil type: Williams silt loam
 - Planting plan:
 - Design: Randomized complete block
 - Replication: 3
 - Plot size: Two (2) individual plants, spaced on 3.5' x 3.5' centers
 - Planting method: Hand
 - Date of establishment: May - June 1980
 - Duration: Five (5) years
 - Management:
 - Seedbed preparation: A clean firm seedbed will be prepared by disking and harrowing.
 - Fertilization: The dates, rates and methods of fertilization will be based on soil test. Refer to project plan supplements.
 - Seed control.
 - Chemical:
 - 'Year of establishment' None
 - Succeeding years. Optional, apply simazine at a rate of 2 pounds actual per acre, according to label recommendations, April - May annually.
 - Mechanical Rotary cultivate and hand hoe as needed to control weeds.
 - Irrigation optional. Irrigation water will be applied as needed during the year of establishment. In succeeding years the assembly will be managed under dryland conditions.
 - Insect control: Apply approved materials at recommended rates for effective control.
 - Crop residue management. Clip and remove crop residue at the beginning of each growing season, April 15 - May ..

542.12

artificially seeded. Where possible, collections should come from diverse soil textural types, such as sandy and silty; or range site groupings such as: (1) "unoff" sites represented by thin uplands, shallow or other poorly developed soils; (2) "off" sites represented by overtopping or submerged sites; (3) Normal upland sites represented by sandy, silty or clayey.

- b. Reconnaissance survey: Locate and examine the potential collection sites prior to the date scheduled for making field collections. This activity may be scheduled with other conservation planning and application activities.
2. Collection procedure: During the week of September 4-7, field office personnel will travel to each of the selected collection sites, locate, and dig six (6) vegetative samples (6" x 6" x 8" deep) from each of the sites. Each sample will be placed in a separate plastic bag. Do not remove soil from the sample. Number the samples consecutively 1 to 6. The six (6) samples will be packaged together in the carton provided to the field office. Cartons, plastic bags, and accession data sheets will be provided to each field office corresponding to the number of collection sites per county.
3. Plant accession data sheets: An accession data worksheet will be completed to describe the location and condition of each site: State, county, legal description, elevation, slope, exposure, precipitation, soil series and range site. The completed form will be placed in the packaging envelope provided with the carton.
4. Transportation of samples:
 - a. Field office personnel will transport samples to designated locations. The designated locations are shown with an asterisk (*) on the attached listing of field office, counties and sites. Store samples in a cool place. Do not allow samples to dry out; add water as needed if samples become dry during handling and transportation.
 - b. The area conservationist will provide coordination within his administrative area to assure that the field collections are completed and transported to designated locations by September 7, 1979.
 - c. Plant Materials personnel will pick up the samples at the designated locations within each administrative area on September 10-14, 1979.

SOIL CONSERVATION SERVICE
PLANT MATERIALS CENTER
BISMARCK, NORTH DAKOTA

PROJECT PLAN SUPPLEMENT - FIELD COLLECTION PROCEDURES

Project #101068

Project Title: Assembly and Evaluation of Little Missouri, Schizachyrium scoparium

I. SUMMARY -

A. Collection Dates: September 4-7, 1979

B. Area of Collection:

The geographic area to be sampled includes North Dakota, South Dakota and Minnesota Major Land Resource Areas 53B, 53C, 54, 55A, 55B, 55C, 56, 57, 58C, 58D, 60, 61, 62, 63, 64, 66, 90, 91, 102A, 102B, 103, 104, and 105.

A map will be prepared by the SCS, Plant Materials Center, Bismarck, North Dakota showing the area of collection. In addition, a list will be prepared of the counties in the collection area and the SCS field office responsible for making the collection.

C. Collection Sites: Two (2) to four (4) sites per county in North Dakota and South Dakota. Three (3) sites per county in Minnesota. Refer to assembly listing states and number of sites per county.

1. Projected number of sites (total) - 620

a. North Dakota: 53 counties - 176 sites

b. South Dakota: 67 counties - 205 sites

c. Minnesota: 79 counties - 237 sites

D. Collection Methods:

1. Planning considerations:

a. Site selection criteria: The intent is to get a broad genetic base of plant material; therefore attempt to get as diverse sampling as practical when selecting superior little bluestem plants in the field. If a county has more than one major land resource area, collections should be made in each area. Collections should be from typical locations, acceptable areas include: Natural grasslands (range), relic areas, and road right-of-ways. Avoid areas that may have been

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SOIL CONSERVATION SERVICE
PLANT MATERIALS CENTER
BISMARCK, NORTH DAKOTA

PROJECT PLAN SUPPLEMENT - SCHEDULE

Project 381016H

Project Title: Assembly and Evaluation of Little Bluestem, *Schizachyrium scoparium*

I. SCHEDULE OF ACTIVITIES - 1979-

- A. Complete project plan outline. January - March
- B. Prepare bulletin transmitting project plans and collection procedures to all field offices within the collection area. March
- C. Assemble cartons, plastic bags and plant accession data sheets. January - July
- D. Provide training to all area conservationists and district conservationists involved in project.

1. North Dakota:

- a. Area I Grand Forks January 11 Jacobson
- b. Area II Fargo January 10 Jacobson
- c. Area III Bismarck POC August 1 Jacobson
- d. Area IV Bismarck January 30 Jacobson
- e. Area V New England January 24 Haas
Watford City January 25 Haas

2. South Dakota Area PM Committee.

- a. Area I Aberdeen May 7 Jacobson
- b. Area II Brookings May 8 Jacobson
- c. Area III Mitchell May 9 Jacobson
- d. Area IV Pierre May 11 Jacobson
- e. Area V Rapid City May 10 Jacobson

3. Minnesota:

- a. Area I - VII (locations - August 13-17 Jacobson
pending)

2. Technical Assistance:

If there are any questions concerning the collection procedure, contact Erling T. Jacobson, Plant Materials Specialist, SCS, P.O. Box 1458, Bismarck, ND 58501, 701-255-4011. Ext. 441; Russell J. Haas, Plant Materials Center Manager, SCS, PM Center, P.O. Box 1458, Bismarck, ND, 701-223-4536.

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SOIL CONSERVATION SERVICE
PLANT MATERIALS CENTER
BISMARCK, NORTH DAKOTA

PROJECT PLAN SUPPLEMENT - LITERATURE REVIEW

Project #81016H

Project Title: Assembly and Evaluation of Little Bluestem, *Schizachyrium scoparium*

Introduction.

The CRIS (Current Research Information System) and AGRICOLA (Agricultural Online Access) literature search systems were used to obtain general research information concerning Little Bluestem. The abstract material and titles were evaluated and 80 articles were selected for publication (AB-265) forms were submitted for the articles concerning Little Bluestem to the project. Emphasis was placed on literature concerning the following: taxonomy, morphology, ecology, growth habits; phenology; adaptability; response to grazing and/or clipping; soil/site relationships; propagation and seed quality; and forage quality.

Abstract.

Little bluestem (*Schizachyrium scoparium*) is a perennial, warm season bunchgrass found throughout the United States, with the exceptions of Alaska and the Pacific coastal states (Hitchcock, 1951). Primary abundance is in the Central Lowlands and the eastern edge of the Southern Great Plains. It is the dominant of many upland plant communities or the True Prairie. In the mixed prairie of the Dakota's it occurs mainly on sandy soils or on weakly developed soils especially along ridges or steep slopes (Johnson and Nichols, 1981). It is considered a climax species in the western grasslands (Gould, 1968). Bard (1952) documented little bluestem as a successional species in the East in old-fields.

Little bluestem has been shown to have a wide tolerance to variation in soil texture (Nixon and McMillan, 1964). Hubbard (1917) stated that little bluestem has a variable growth habit in response to both environmental and edaphic factors. Cooper (1957) stressed the importance of using ecological principles when selecting and planting adapted plant materials for conservation. Observations made indicate adapted plants moved about 250 to 300 miles north or 100 to 150 miles south of the point of origin to areas of comparable soil and climatic conditions. Movement east or west depends on changes in elevation and precipitation. Corneilus (1947) studied flowering dates of little bluestem plants with different origins at the Manhattan, Kansas, SCS grass nursery. Plants from Tower, North Dakota, flowered an average of 4 to 5 days after June 15, compared to Manhattan, Kansas, plants at 63 to 50 days, and Vernon, Texas, plants at 87 to 33 days. He also found that little bluestem plants increased in plant height from north to south, with the exception of plants from higher elevations.

Production values of little bluestem vary depending on climate and soils. Caird (1945) reported production values of little bluestem twice as high on clay soils compared to a fine sandy loam, both areas supporting a similar grassland community. At Auburn and Dodd (1970) reported that the A horizon of a fine sandy loam and a clay soil both contained approximately 80% of the root system of little bluestem under field

- F. Send materials (cartons, plastic bags, and accession record work-sheets) with final instruction to each field office. August
- G. Field office personnel collect vegetative samples and transport to designated locations. September 4-7
- Projected work-days needed to complete the assignment. One (1) work-day to make the collections and one (1) work-day to transport them to a designated location.
- d. Plant materials center personnel will pick up samples at designated locations. September 10-14
 1. The area conservationists will be responsible for coordinating the collection and transportation of samples within their administrative areas.
 2. Plant materials personnel responsible for coordinating collection and transportation of the cartons:
 - a. Minnesota - Plant Materials Specialist
 - b. South Dakota - Plant Materials Center Manager
 - c. North Dakota - Soil Conservationist or other designating PM staff member.

I. Transplanting procedures - greenhouse.

The plant materials center manager will supervise transplanting the samples to cone-trainers. September - April

J. Transplanting procedures - initial evaluation nursery:

The plant materials center manager will supervise transplanting core-trainers from greenhouse to space-plant nursery. May - June 1980

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of growth, and the wide range of soils on which it thrives. Little bluestem has great value for erosion control. Seed matures in late September and October and amount of seed depends on that rainfall. Restate moisture, and favorable temperature during seed development. Because of these requirements, dependable seed harvest of little bluestem occurs in any area in successive years. If it is grown in rows and cultivated, yields of 200 pounds per acre or more may be expected. Seed units are light and chaffy, requiring additional processing before seeding in most drills. Hammer mills are useful for further processing. Seed purity of at least 40 percent and germination of 60 percent should be obtained. A pound of clean seed contains 254,000 to 263,000 seed units (Hoover, Ben, Dayton, and Erlanson, 1948).

Several adapted cultivars of little bluestem are available for use in the central and southern Great Plains. 'Camper' little bluestem has the most vigor and is recommended for planting in Major Land Resource Areas 65, 66, 71, and 73 (Hornbush, 1962). No adapted cultivars are recommended for use in the Northern Great Plains.

Literature Cited:

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5. Cornelius, D. R. 1947. The effect of source of little bluestem grass seed on growth, adaptation, and use in revegetation seedlings. Jour. Agr. Res. 74:139-143.
6. Fick, W. 1975. Why little bluestem *Andropogon scoparius* is a key plant in the composition of Nebraska's rangelands. In Prairie A Multiple View. 423-425.
7. Gould, F. W. 1968. Grass systematics. McGraw-Hill Book Co., New York. 382p.
8. Harford, L. R. 1951. The effect of different intensities and frequencies of clipping on forage yield of *Andropogon scoparius* Michx. and *Paspalum plicatillum* Michx. Unpublished M.S. thesis, A. College of Texas.
9. Hubbard, F. T. 1917. *Andropogon scoparius* in the U.S. and Canada. Rhodora 19:100-105.

conditions. Mature plants have a root depth of approximately 5 feet and may spread laterally near the soil surface to 3.5 feet (Weaver, 1968).
 Jameson and Huse (1959) found that little bluestem tillering was stimulated by removal of shoot tips, but that the overall effect was reduction in yield. They further reported (1951) that clipping after seedstalk formation increased seed production and that the first year, but clipping little bluestem once each year at heights of 3", and 6 inches before seedstalks were formed resulted in decreased production the first year.

Observation of grazing use of little bluestem has shown that cattle graze mostly on the leaves until late August, and after that date the seed stalks receive the most grazing (Jameson and Huse, 1959). Weaver (1968) reported that little bluestem is readily eaten in spring and early summer, but is often avoided after its woody stems are produced. Chemical analysis of plants in eastern Kansas indicates that ungrazed plants are very nutritious until July. After this time more stems are produced in proportion to leaves and nutritive content and palatability decrease (Aldous, 1938). A moderately grazed little bluestem pasture provides palatable and nutritious forage throughout the growing season. Studies have shown that the greatest injury arises from close grazing at the beginning of the growing season due to the fact that food reserves are accumulated at this time. Grazing preference studies have shown that cattle preference for little bluestem was equal to big bluestem on ranges and in fair condition, but decreased on good to excellent condition range land in 1967. Fick (1973) reports that little bluestem is a key plant in the provision of Nebraska rangelands and can be used as a yardstick to determine proper use. He reports that individual plants may appear ungrazed but close observation reveals many young plants in the same area that are being utilized and providing nutritious forage.

Conducting phenological and reproductive studies of little bluestem, Roos and Quinn (1977) found that seasonal progression of height, seed production, and maximum height at the end of the growing season showed no significant differences among populations that could be related to successional stage. Mean height increased up to age 15, but in two 40 year-old populations, it decreased to less than that of the youngest population. When first anthesis date was consistently later with increasing age of the population, younger populations tend to have higher reproductive efficiencies. In 1967, R. V. Quiller reported that phenological development of transplants of little bluestem was similar between the first and third (last) year of observation, and that these same patterns were repeated by materials propagated from seed. Greenhouse experiments of little bluestem by Roos and Quinn (1977) found that 10 year-old plants were the tallest in all conditions and the 40 year-old population had the most phenotypic variability.

Weaver (1968) reported that germination of little bluestem is often low, but the seedlings are vigorous. During the first summer they may attain a height of 6 inches or more and tiller profusely. Little bluestem is very long lived. Deterioration due to continued mowing or grazing usually always occurs first in the center of the clump and proceeds toward the periphery. It is reported that because of its drought hardiness, habit

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<p style="text-align: center;">U.S. DEPARTMENT OF AGRICULTURE CURRENT RESEARCH INFORMATION SYSTEM (CRIMS) REQUEST FOR INFORMATION RETRIEVAL</p> <p>NOTE: See CRIMS card for detailed instructions. Items 1 through 7 MUST be completed. 7. REQUESTED BY (Name, organization, address, and telephone no.)</p>	<p>1. FOR CRIMS USE ONLY SUBMITTED TO NO.</p> <p>2. DATE RECEIVED (Date, mo., yr.)</p> <p>3. DATE RECEIVED (Date, mo., yr.)</p>
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4. REQUESTED FOR (Name and telephone no., and address, page 1)

5. SUBJECT OR AREA OF INTEREST TO BE SEARCHED (Include subdivisions completely, giving name of your subject, treatment and nature of treatment)

6. SUPPORT (See instructions on page 1) <input type="checkbox"/> STANDARD <input type="checkbox"/> TECHNICAL	OR <input type="checkbox"/> TITLE	PERSONAL <input type="checkbox"/> INVESTIGATOR	OBJECTIVES <input type="checkbox"/> APPROACH	PROGRESS <input type="checkbox"/> PUBLICATIONS	OR <input type="checkbox"/> OTHER REMARKS IN CRIS ID NO.
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7. RESEARCHER (Name, Title, Address, Telephone, and Fax) (See instructions on page 1)

CLASSIFICATION CODES

8. ACTIVITY

9. COMPLETION DATE (Month, Year, Day)

10. FUNDING AGENCY

11. FUNDING AGENCY ADDRESS

12. FUNDING AGENCY TELEPHONE

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73. FUNDING AGENCY FAX

74. FUNDING AGENCY NAME

75. FUNDING AGENCY ADDRESS

76. FUNDING AGENCY TELEPHONE

77. FUNDING AGENCY FAX

78. FUNDING AGENCY NAME

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223. FUNDING AGENCY ADDRESS

224. FUNDING AGENCY TELEPHONE

225. FUNDING AGENCY FAX

226. FUNDING AGENCY NAME

227. FUNDING AGENCY ADDRESS

228. FUNDING AGENCY TELEPHONE

229.

§542.13 Form AD-427, Request for Information Retrieval

Part 542 - Exhibits

542.14

FORM AD 245-4 (3/80)		REQUEST FOR PUBLICATION	
NAL CALL NO	SPECIAL <input type="checkbox"/> HOLD <input type="checkbox"/> SEND <input type="checkbox"/> PHONE	U.S. Department of Agriculture Science and Education Administration National Agricultural Library Lending Division Beltsville, Maryland 20705	
YOUR NAME AGENCY, & BUSINESS ADDRESS (Include ZIP code)		REPORT TO REQUESTER NOT SENT BECAUSE <input type="checkbox"/> NOT OWNED <input type="checkbox"/> NOT LOCATED <input type="checkbox"/> IN USE <input type="checkbox"/> NON-CIRCULATING <input type="checkbox"/> INSUFFICIENT DESCRIPTION THE LIBRARY HAS TAKEN THE FOLLOWING ACTION ON YOUR REQUEST <input type="checkbox"/> RESERVE PLACED, WILL SEND WHEN IT BECOMES AVAILABLE <input type="checkbox"/> NAL IS TRYING TO OBTAIN FROM ANOTHER LIBRARY <input type="checkbox"/> PURCHASE ORDER PLACED	
TELEPHONE	DATE OF REQUEST		<p align="center">- NOTICE - WARNING CONCERNING COPYRIGHT RESTRICTIONS</p> <ul style="list-style-type: none"> The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted material. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be used for any purpose other than private study, scholarship, or research. If a user makes a request for a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement. This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.
YOU MUST SIGN HERE TO ENSURE SERVICE			
DESCRIPTION OF PUBLICATION--Author, title, periodical title, volume, year, page, etc			
REFERENCE SOURCE OF THE REQUESTED PUBLICATION, IF AVAILABLE			

PART 1 - WORK ORDER

§542.15 AD 245-4, Request for Publication

National Agricultural Library Beltsville, Md 20705		Reference Section Rm 111 (301) 344 3704	
COMPUTER SEARCH REQUEST			
Name:	Phone: ()		
Mailing Address:	Affiliation/Organization:		
(Zip)			
Date	Delivery Method: <input type="checkbox"/> Mail <input type="checkbox"/> Pick Up <input type="checkbox"/> Call	(Completed by NAL staff)	
Describe your search request in narrative form. Be specific. Indicate the purpose for which this search will be used.			
Keywords: Important words often found in titles and abstracts in the subject area of your interest. Include synonyms, acronyms, abbreviations, etc			
Languages: Indicate preference - <input type="checkbox"/> English only <input type="checkbox"/> All Languages <input type="checkbox"/> Specific Languages:			
Limitations: Indicate if you wish your search to be limited by any factor. (i.e. years of literature coverage)			
List any authors or articles known to you that are relevant to your request			

§542.14 Computer Search Request (NAL)

542-48

(190-V-NPMM, August 1984)

our Regional Stations
Data Base: Established 1980
Location: Washington Computer Center, ISM
Type Access: Written or oral request

US is available at no direct charge to all USDA personnel and faculty of colleges and universities that offer agricultural degrees. Profile output is regularly updated and mailed. A search profile consists of up to 250 terms (a term can be a keyword or phrase up to 65 characters long), and generally processes a particular query.

\$542.16 Other plant data bases

542.16

Contact: Agricultural Research Service
Plant Introduction Office
BARC-West
Beltsville, Maryland 20705
FIS 344-3328

National Seed Storage Laboratory (all plants)

Data Base: Established in 1974
Storage: Univec at Ft. Collins, Colorado
Type Access: Written or oral request
Contact: Agricultural Research Service
National Seed Storage Laboratory
Colorado State University
Ft. Collins, Colorado 80501
FIS 323-5205

Plant Materials at Arborea and Gardens

Storage: American Horticultural Society
Type Access: Written or oral request
Contact: American Horticultural Society
P.O. Box 0105
Mt. Vernon, Virginia 22121
Comm. 768-5700

NPIS - National Pesticide Information Retrieval System

The Nation Pesticide Information Retrieval System (NPIS) is being developed at Purdue University through a cooperative agreement with the U.S. Department of Agriculture. NPIS is a computer-based data resource that contains information describing key characteristics of all pesticide products registered by the U.S. Environmental Protection Agency and participating state regulatory agencies.

Contact: User Service Manager
NPIS, Entomology Hall
Purdue University
N. Lafayette, Indiana 47907

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(190-V-NPMM, August 1984)

542.17

Plant Materials Activities and Due Dates

Action	By	Addressed to	Date	Form	NPMM Section Reference
Plant Materials Center: Budget	PMC Manager	STS - Budget & Finance	As determined by STC		540.13(c)(A)
5-Year Acquisition and Replacement Schedule (equipment & building repair)	PMC Manager	STC Advisory Committee	September 1		540.13(c)(1)
Operating Procedures: APD for PMC	PMC Manager	STC Advisory Committee	As determined by Advisory Committee		540.14(c)
Inventory and Production Estimates: Seeds and Plants Production update	PMC Manager PMC Manager	NTC PMS and PMS NTC PMS and PMS	August 1 November 1	SCS-ECS-582	541.11(a) 541.11(b)
Plant Materials Reports: Annual PM Report Annual PMS Report	PMC Manager PMS and PMS	STC Advisory Committee As determined by State PM Committee	May 1 May 1		541.0 541.1
Annual Report of PM Activities & Accomplishments	PMC Manager and PMS	STC to Director, ECS Division	July 15	SCS-ECS-008	541.2
Allocation and Distribution: Request for PM Continuing Seed & Plant Needs Summary of Continuing Needs Summary of Supply and Allocation	PMS PMS NTC PMS NTC PMS	NTC PMS NTC PMS PMS and PMC Manager PMS and PMC Manager	August 1 August 1 September 1 October 1	SCS-ECS-582 SCS-ECS-582	541.12(a) 541.12(b) 541.12(b) 541.13

1/ Dates shown may be adjusted by NTC Director in consultation with State Conservationists.

\$542.17 Plant materials activities and due dates

Part 542 - Exhibits

§542.18 Supply Item 190-007, Seed Collection Envelope

190-007 3-81 U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	SEED SAMPLE ENVELOPE	SEED COLLECTION INFORMATION			
		NOTE: SEE SEED COLLECTION INSTRUCTIONS ON THE BACK OF THIS ENVELOPE			
		SCIENTIFIC NAME		COMMON NAME	
		ERECTIS AUTHOR (PMC ONLY)		BOTANICAL VARIETY NAME	
		CULTIVAR		BOTANICAL VARIETY AUTHOR	
		DATE COLLECTED	COLLECTOR'S NAME	COLLECTOR'S HEADQUARTERS	
		CIRCLE ONE ITEM EACH UNDER A AND B BELOW:			
		A NUMBER OF PLANTS FROM WHICH COLLECTED: SINGLE 2-6 6 OR MORE			
		B PLANT TYPE: GRASS LEGUME VINE FORB SHRUB TREE			
		COLLECTION SITE INFORMATION			
STATE		COUNTY	ZONE		
SECTION		TOWNSHIP	RANGE		
N. LATITUDE		W. LONGITUDE	MLRA		
GENERAL SITE INFORMATION					
SOIL SERIES & TEXTURE		ELEVATION (FEET)	ELEVATION (METERS)		
SLOPE (PERCENT)	EXPOSURE	PRECIPITATION (INCHES)	PRECIPITATION (MM)		
PLANTS GROWN IN ASSOCIATION					
REMARKS					

 ACCESSION NUMBER

 DATE

Seed Collection: Check each collection for filled seed and then attempt to get the equivalent of one-fourth pound of seed. Collect either seed material, heads or short stems, and make a separate collection if the site or location is different. Watch for superior plants that display unusual characteristics and record observations. Seed from an individual plant or from several plants can constitute a collection; clearly show on form the type of collection. Add a small amount of insecticide if weevils are present. If insecticide is used, show name in the remarks section.

Send seed collections to the PMC serving the State, unless other specific instructions are provided.

Part 542 - Exhibits

§542.19 SCS-ECS-580, Plant Collection Information

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCS-ECS-580

PLANT COLLECTION INFORMATION
(Seed or Vegetative)

Scientific name _____ Common name _____

Species author* _____ Botanical variety name _____

Botanical variety author* _____ Cultivar _____

Date _____ Collector's _____ Collector's _____
Collected _____ name _____ hq. address _____

Circle one of each: a. Number of plants collected from--(single)(2-6)(6 plus)
b. Type of material collected--(seed)(veg)
c. Plant type--(grass)(legume)(vine)(forb)(shrub)(tree)

Location collected: State _____ County _____ Zone _____ Section _____

Township _____ Range _____ N. Latitude _____ W. Longitude _____ MLRA _____

General site location _____

Soil _____ Elevation _____ feet (or) _____ meters
(series) (texture)

Percent slope _____ Exposure _____ Avg. Precipitation _____ inches (or) _____ mm

Plant growing in association _____

Additional information _____

*Items to be completed by PMC

Complete information (as far as possible) on each item is used for each collection. It will enable prompt and easy entry of plant accessioning data on form SCS-PH-575 and will expedite the process of obtaining a National PI number for a collection.

Unless specific instructions are provided, collections are to be sent to the PMC serving the state.

Seed Collection: Check each collection for filled seed and then attempt to get the equivalent of one-fourth pound of seed. Collect either seed material (heads, short stems, etc.) or clean seed, whichever is easiest. Limit a collection to a specific soil or site and make a separate collection if the site or location is different. Watch for superior plants that display unusual characteristics and record observations. Seed from an individual plant or from several plants can constitute a collection; clearly show on form the type of collection. Put dry seed in either paper bags or in cloth sacks. Add a small amount of insecticide if weevils are present. If insecticide is used, show name legibly on the bag.

Vegetative Material Collection: Collect only good healthy material; wrap roots or cuttings with moist paper or cloth; place material in plastic bag with a few small holes; box and mail immediately.

Include this information sheet inside the container, write the name of the plant on outside and note if insecticide was used. Use the back of this form for additional information or a sketch of the collection location.

Location: For states where General Land Office Surveys do not exist, identify map locations to the nearest one-half minute latitude and longitude.

Draw a sketch of the collection area on back of this sheet.

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(190-V-NPMM, August 1984)

542.20

SCS EGS 575
6-81

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

PLANT ACCESSIONING DATA

CENTER										PLACE										TECHNICIAN										DATE																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
T PI NUMBER 001										GENUS NAME 004										SPECIES NAME 005										ST DATE 104																			
C JUN 042										SPECIES AUTHORITY 006										SUBSPECIES NAME 007										CULTIVAR 011																			
A										SUBSP. AUTHOR 008										BOT. VAR. NAME 009										BOT. VAR. AUTHOR 010																			
B										COMMON NAME 012										COLLECTOR'S NAME 013										SITE CON. 015																			
D										PRIME PMC										COLLECTION										SAMPLE																			
E										CONTROL DATE 024										SOIL TAXON										COLLECTOR'S NAME 025																			
F										ST NUMBER 026										SOIL SERIES NAME 027										COLLECTOR'S NAME 028																			
G										ST NUMBER 029										SOIL SERIES NAME 030										COLLECTOR'S NAME 031																			
H										ST NUMBER 032										SOIL SERIES NAME 033										COLLECTOR'S NAME 034																			
I										ST NUMBER 035										SOIL SERIES NAME 036										COLLECTOR'S NAME 037																			
J										ST NUMBER 038										SOIL SERIES NAME 039										COLLECTOR'S NAME 040																			
K										ST NUMBER 041										SOIL SERIES NAME 042										COLLECTOR'S NAME 043																			
L										ST NUMBER 044										SOIL SERIES NAME 045										COLLECTOR'S NAME 046																			
M										ST NUMBER 047										SOIL SERIES NAME 048										COLLECTOR'S NAME 049																			
N										ST NUMBER 050										SOIL SERIES NAME 051										COLLECTOR'S NAME 052																			
O										ST NUMBER 053										SOIL SERIES NAME 054										COLLECTOR'S NAME 055																			
P										ST NUMBER 056										SOIL SERIES NAME 057										COLLECTOR'S NAME 058																			
Q										ST NUMBER 059										SOIL SERIES NAME 060										COLLECTOR'S NAME 061																			
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T										ST NUMBER 068										SOIL SERIES NAME 069										COLLECTOR'S NAME 070																			
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V										ST NUMBER 074										SOIL SERIES NAME 075										COLLECTOR'S NAME 076																			
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X										ST NUMBER 080										SOIL SERIES NAME 081										COLLECTOR'S NAME 082																			
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AB										ST NUMBER 092										SOIL SERIES NAME 093										COLLECTOR'S NAME 094																			
AC										ST NUMBER 095										SOIL SERIES NAME 096										COLLECTOR'S NAME 097																			
AD										ST NUMBER 098										SOIL SERIES NAME 099										COLLECTOR'S NAME 100																			
AE										ST NUMBER 101										SOIL SERIES NAME 102										COLLECTOR'S NAME 103																			
AF										ST NUMBER 104										SOIL SERIES NAME 105										COLLECTOR'S NAME 106																			
AG										ST NUMBER 107										SOIL SERIES NAME 108										COLLECTOR'S NAME 109																			
AH										ST NUMBER 110										SOIL SERIES NAME 111										COLLECTOR'S NAME 112																			
AI										ST NUMBER 113										SOIL SERIES NAME 114										COLLECTOR'S NAME 115																			
AJ										ST NUMBER 116										SOIL SERIES NAME 117										COLLECTOR'S NAME 118																			
AK										ST NUMBER 119										SOIL SERIES NAME 120										COLLECTOR'S NAME 121																			
AL										ST NUMBER 122										SOIL SERIES NAME 123										COLLECTOR'S NAME 124																			
AM										ST NUMBER 125										SOIL SERIES NAME 126										COLLECTOR'S NAME 127																			
AN										ST NUMBER 128										SOIL SERIES NAME 129										COLLECTOR'S NAME 130																			
AO										ST NUMBER 131										SOIL SERIES NAME 132										COLLECTOR'S NAME 133																			
AP										ST NUMBER 134										SOIL SERIES NAME 135										COLLECTOR'S NAME 136																			
AQ										ST NUMBER 137										SOIL SERIES NAME 138										COLLECTOR'S NAME 139																			
AR										ST NUMBER 140										SOIL SERIES NAME 141										COLLECTOR'S NAME 142																			
AS										ST NUMBER 143										SOIL SERIES NAME 144										COLLECTOR'S NAME 145																			
AT										ST NUMBER 146										SOIL SERIES NAME 147										COLLECTOR'S NAME 148																			
AU										ST NUMBER 149										SOIL SERIES NAME 150										COLLECTOR'S NAME 151																			
AV										ST NUMBER 152																																							

§542.20 SCS-ECS-575, Plant Accessioning Data

Part 542 - Exhibits

§542.21 Instructions and codes for entries on accession data form (SCS-ECS-575)

Revised April, 1983

INSTRUCTIONS AND CODES FOR ENTRIES ON ACCESSION DATA FORM (SCS-ECS-575)

General Instructions.

1. Form SCS-ECS-575 is submitted to the National Plant Materials Center (NPNC) for each plant collection at a PNC for assignment of an accession number and for entry into a PNC's accessioning record. A plant must be accessioned before evaluation data can be submitted.

(a) All plant materials received from foreign sources will be processed through the NPNC for complete accessioning before the seed or plants are distributed to other centers.

(b) "Prime PNC" is an accessioning term with general reference to the PNC that first receives a plant collection and is responsible for submitting all available collection information as provided for on the Form SCS-ECS-575. The NPNC is the Prime PNC for all foreign introductions. Accessioning of native collections will not be exchanged between PNC's (or with other agencies) until a 900 or PI number has been assigned to the plant(s). It is essential that the Prime PNC also enter its State PIPS code in the "Secondary PNC" data field in order to later be able to access the data system. (Read Instructions for Card Line A - Secondary PNC and Card Line E-Prime PNC.)

(c) "Secondary PNC" is an accessioning term with general reference to the successive PNC's that receive plants after the initial collection and accessioning.

(d) Write in the plant's "Family" name on the upper right hand corner of the form 575. The NPNC has been requested to provide this information to the ARS Plant Introduction (PI) Office. It will not be in the SCS PI Data System.

2. Card Lines - lines A through H upon which data are entered. These data are transferred to keypunch cards--thus the term Card Lines.

3. Card Use - read instructions carefully (see page 2). The first time you submit data in any data field on a Card Line, you leave this space blank. At a later time if you change data or want to delete data, etc., insert the appropriate code as per instructions.

4. Blank Space - except for the above situation involving the Card Use space, all blanks will be interpreted to mean that no data are available for that particular data field.

5. In many cases, data for various fields are not available. Do not be overly concerned about this, but rather be accurate in entering the data that are available.

-2-

6. When submitting an Accessioning Data Form for an accession for a plant that had previously been received from another SCS PNC, insert as the first entries in the remarks Card Line G the previous accession numbers shown in your records.

7. Print or type entries to insure accuracy.

8. Do not exceed number of spaces allowed in any field of data.

Heading:

The following information is not transferred to the computer; it is needed only to identify the source of the form and accessioning data during the processing period:

- a. Center - name of plant materials center.
- b. Place - name of town and state.
- c. Technician - name of person filling out the form.
- d. Date - date the form submitted to the NPNC for accessioning.

Card Line A:

C. USE (2). Card Use - this field of data will be left blank the first time data are submitted for a plant introduction (PI) or 900 number. The following codes are inserted at other times when data are added or corrected: A--Add Data (code is used to indicate that new elements are being added) and C--Change Data (code is used to indicate that the data submitted is changing or correcting an existing element). It is mandatory that no data sheet have mixed codes. Only the Prime PNC can add or change accessioning data.

PI OR 900 NUMBER (3-10). PI numbers and 900 numbers are used interchangeably. The 900 number will be assigned by the PNC first accessioning the plant (900 numbers will be assigned in consecutive order from a block of 900 numbers given the PNC by the NPNC). The 900 number will remain with the accession throughout the evaluation process. The 900 or PI number will be entered in position 3-10 on each card line each time an entry is made on that line.

PLANT SYMBOL (11-16). If a plant name is in the National List of Scientific Plant Names (NLSNP), insert the plant symbol on this form. If plant name is not in the NLSNP, use the first two letters each of the genus and species.

* (17). Asterisk Symbol - write in an * (asterisk) if the plant symbol entered is not in the NLSNP.

542-55

(190-V-NPMM, August 1984)

Part 542 - Exhibits

542.21

-3-

GENUS NAME (19-46) Insert complete genus name. Verify accuracy of spelling from NLSFN or from other technical sources if plant name is not in NLSFN.

SPECIES NAME (47-73) Insert complete species name. Verify accuracy of spelling from NLSFN or from other technical sources if plant name is not in NLSFN.

SEC PNC (74-80) Secondary Plant Materials Center - Secondary PNC refers to centers that receive plant materials accessioned originally at another PNC. To include such material in your center's Accessions Records, insert PI or 900 number, genus and species names, State FIPS code, date material received at your center, ex. 08/83. All Primary PNC's must enter their State FIPS code number as stated in General Instructions.

Card Line B

C USE (2) Card Use - refer to first line of instructions under Card Line A.

PI OR 900 NUMBER (5-10) Refer to Card line A instructions.

SPECIES AUTHOR (11-40) Insert author of scientific name as found in NLSFN using abbreviations and periods as listed.

SUBSPECIES NAME (41-60) Spell subspecies name. Verify accuracy of spelling from NLSFN or from other technical sources if plant name is not in NLSFN.

Card Line C:

C USE (2) Card Use - refer to first line of instructions under Card line A.

PI OR 900 NUMBER (5-10) Refer to Card line A instructions.

SUBSP. AUTHOR (11-25) Subspecies Author - Insert authority for scientific name as found in NLSFN or other technical sources. Refer to statements for species author.

BDI VAR NAME (26-45) Botanical Variety Name - Insert complete name as found in NLSFN or other technical sources.

BOF VAR AUTHOR (46-60) Botanical Variety Author - Insert authority for scientific name as found in NLSFN or other technical sources. Refer to statements above for species author.

CULTIVAR (61-80) The name of commercial or "released" cultivar. The use of the description "common" should be inserted if the cultivar is sold by this designation. For instance--common bermudagrass. This would most often apply for plants selected as a possible standard for comparison in future evaluations. For plants received

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from agencies other than SCs, the experimental number used by the agency (includes universities) should be inserted in this data field.

Card Line D:

C USE (2) Card Use - refer to first line of instructions under Card Line A.

PI OR 900 NUMBER (5-10). Refer to Card line A instructions.

COMMON NAME (11-30) Common Plant Name - write in common name if known, ex. western wheatgrass, switchgrass, soft chess, strawberry clover, red oak, saltbush, etc.

COLLECTOR'S NAME (31-45) Insert collector's name.

ELEV/H (46-50). Elevation in Meters - convert feet to meters (1 meter = 3.3 ft.) and enter number to nearest feet, ex. 525, 1587, 11587.

SL % (51-52). Percent Slope - use average of slope, ex. 09, 18, two digits. Do not use a range of figures such as 9 - 12% or 4 - 8%.

EXP (53-54). Exposure - ex. W for West, NE for Northeast.

PRCP/IN (56-60) Average precipitation measured in millimeters, multiply inches of precipitation by the factor 25.4.

RANGE SITE (61-65) Insert symbol for name of range site (if known) where collection was made.

DATE COLL (66-70) Date Collected - insert two digits for month and two digits for year, 08/83 or 12/83.

MAT'L REC'D (71-76) Material received - write in "seed" or "vege" (vegetative) to describe material submitted by collector to the PNC.

QUAN MAT'L REC'D (77-80) Quantity of material received - if seed were received, the data will be in grams (smallest weight will be 1 gram); if plants or vegetative parts were received, the data inserted will represent the number of plants or vegetative pieces.

Card Line E:

C USE (2). Card Use - Refer to first line of instructions under Card Line A.

PI OR 900 NUMBER (5-10) Refer to Card line A instructions.

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PRIME PNC - Is the PNC that receives and accession (supplies basic collection information, etc.) an item of plant materials for the first time. The three fields of data included are ST (11-12) State - code number for state abbreviation from FIPS code, ex. 04 for Arizona. Control Number (13-17) DATE REC'D (18-22) The month and year shown as 06/83 for August 1983 when the Prime PNC received the material. Accessioning and assignment of PT or 900 number should follow in a reasonable time. SPECIAL NOTE - when filling in a Form SCS-ECS-575 as the Prime PNC, also enter in the data field for SEC PM on Card line A the same State FIPS code number as was entered in the "Prime PNC ST".

SOIL TAXON (at collection site).

SOIL SERIES NAME (23-28) Enter the predominant soil series of the field where the collection was made.

TEXTURE MODIFIER (39-42). Enter code from below, if applicable.

CB--cobbly	GR--gravally
CBV--very cobbly	GRV--very gravally
CN--channeery	HK--hacky
CNV--very channeery	PT--peaty
CR--cherty	SH--shally
CNV--very cherty	ST--stony or bouldery
CY--clindory	STV--very stony or bouldery
CYV--very cindery	STE--extremely stony or bouldery
FL--flaggy	GV--grittly
FLV--very flaggy	GVV--very grittly

TEXTURE TYPE (44-47). Enter code from below, if applicable:

G--gravel	VFSL--very fine sandy loam
SG--sandy gravel	L--loam
S--sand	SL--silt loam
CS--coarse sand	SL--silt
FS--fine sand	SLC--sandy clay loam
VFS--very fine sand	CL--clay loam
CLS--loamy coarse sand	SLC1--silty clay loam
LS--loamy sand	SC--sandy clay
LFS--loamy fine sand	C--clay
LVFS--loamy very fine sand	SIC--silty clay
CLS1--loamy sandy loam	M--muck
SL--sandy loam	PT--peat
FS1--fine sandy loam	MPT--mucky peat

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Even if the soil series name is unknown, use the codes for texture modifier and texture type if this information is available.

COLLECTION SAMPLE (49-54) Insert the word "single," "few," or "many" that best describes the number of plants sampled for seed collection or vegetative parts by the collector.

Card Line B:

C. USE (4) Card Use - refer to first line of instructions under Card Line A.

PT OR 900 NUMBER (5-10) Refer to Card line A instructions.

Collection Site Location:

ST (11-12). State - use two-digit FIPS code.

CIN (13-15) County - use three-digit FIPS code.

For more information on Range, TWP, SEC, Tract - refer to attached Land Survey Chart.

Range (17-21). Enter as ex.--12E.

TWP (22-26) Township - enter as ex.--21S.

SEC (27-28). Section, 640 acres of land. Section numbers in a township are numbered from 1 to 36; ex.--26.

Tract (30-35) Is breakdown of a section to a 10-acre parcel; ex.--NN NW SE.

Latitude (41-52). North latitude - ex.--38137'30". (Latitude and longitude to be used if the above mapping coordinates are not available.)

Longitude (53-64). West longitude - ex.--177407'30".

Mapping Systems - General Land Survey maps for most of the United States provide range, township and section markers to assist in identifying collection site locations. For states without CLO coordinates, the USGS topographic maps commonly found in field offices can be used to determine latitude and longitude to the nearest 30 seconds. Try to provide codes of one system or the other for possible return to collection site in the future.

HLRA (65-69). Major Land Resource areas - use official code no. --up to three digits and a letter--ex. 4, 99, 135A

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SEED ZONE (71-74) This information refers to the "Seed Zones" as described in the Great Plains Agriculture Council Publication No. 71, Provisional Tree and Shrub Seed Zones for the Great Plains. Use where applicable.

PL (75-76) Foreign Country - For accessions collected in foreign countries, insert the appropriate two-digit FIPS Code.

Card Lines 6 and 11

C USE (2) Card Use - refers to first line of instructions under Card Line A.

PI OR SUB NUMBER (5-10) Will be entered after assignment by ARS PI Office if any data are entered on this line.

REMARKS (11-80). For special notes on soil, geography, plant community, location, etc. Use concise descriptions or statements only. Do not exceed 70 characters on a line when entering remarks data (this number includes the normal spacings between words). Before making entries on these remarks Card Lines, review General Instruction 6 regarding previous PHL accession numbers.

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(190-V-NPMM, August 1984)

[illegible]

\$542.22 SCS-ECS-058, Woody Plant Initial Evaluation

Part 542 - Exhibits

§542.23 Instructions and codes for entries on woody plant evaluation data form (SCS-ECS-058)

Revised April, 1983

INSTRUCTIONS AND CODES FOR ENTRIES ON WOODY PLANT INITIAL EVALUATIONS DATA FORM SCS-ECS-058

General Instructions.

1. Before any evaluation data can be submitted for storage in the computer, the accessioning procedure must be completed for each plant (accession) being evaluated.
2. Print or type legible, neat entries to insure accuracy.
3. Card lines - lines 1 through 0 upon which data are entered.
4. Card Use - see instructions on page 2 for the purpose and procedure for using this data field.
5. Blank Spaces - except for the above situation involving the Card Use space, all blanks will be interpreted to mean that no data are available for that particular data field.
6. PI Number (or 900-Number) - must be inserted in Space 5-10 of any Card Line upon which data are entered.
7. In collecting and submitting data, some data fields will be used only once, other data fields will be used each growing season during the evaluation of an accession.
8. Do not exceed number of spaces allowed in any field of data.
9. Year of Record - only one year's data can be inserted on any one form SCS-ECS-58.
10. Data to be recorded will be consistent with and identified in the project plan.

Heading.

The following information is not transferred to the computer, it is needed only to identify the source of the form and data during the processing period:

- a. Center - name of plant materials center
- b. Place - name of town and state if not included in PHC name
- c. Technician - name of person filling out the form
- d. Date - date the form is filled out at the PHC

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Card Line 1:

C. USE (2) Card Use - this field of data will be left blank the first time data are submitted for a plant accession number. The following codes are inserted at other times when data are added or corrected: A--Add Data (code is used to indicate that new elements are being added), C--Change Data (code is used to indicate that the data submitted is changing or correcting an existing element). It is mandatory that no data sheet have mixed codes.

PI OR 900 NUMBER (5-10) Plant Introduction Number - must be inserted on every Card line where data is entered.

EVAL PHC (11-12) Evaluating Plant Materials Center - use the two-digit PIPS code for state name abbreviation, ex. 04 for Arizona.

YR REC (13-14) Year of Record - use last two-digits of year in which data are recorded, ex. 83 for 1983.

SOIL TAXON (at evaluation site).

SOIL SERIES NAME (16-31). Enter the predominant soil series of the field where the evaluation plot is located.

TEXTURE MODIFIER (36-39). Enter code from below, if applicable:

CB--cobbly	GR--gravelly
CBV--very cobbly	GRV--very gravelly
CH--channery	HK--mucky
CHV--very channery	PT--peaty
CR--cherty	SH--shaley
CRV--very cherty	ST--stony or bouldery
CY--cindery	STV--very stony or bouldery
CYV--very cindery	STE--extremely stony or bouldery
FL--flaggy	GY--gritty
FLV--very flaggy	GYV--very gritty

TEXTURE TYPE (40-43). Enter code from below, if applicable:

G--gravel	VFSI--very fine sandy loam
SG--sandy gravel	L--loam
S--sand	SIL--silt loam
COS--coarse sand	SI--silt
FS--fine sand	SCL--sandy clay loam
VFS--very fine sand	CL--clay loam

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LCOS--loamy coarse sand	SICL--silty clay loam
LS--loamy sand	SC--sandy clay
LFS--loamy fine sand	C--clay
LVS--loamy very fine sand	SIC--silty clay
COSL--coarse sandy loam	M--muck
SL--sandy loam	PT--peat
FSL--fine sandy loam	MPT--mucky peat

Even where the soil series name is unknown, use the codes for texture modifier and texture type if this information is available

STANDARD OF COMPARISON (44-58) Cultivar name, or PI number if standard does not have cultivar (or "variety") name.

DATE SOWN (59-63). Month and day in which seed is planted, ex. 04/04 for April 4 or 10/15 for October 15 the year is indicated in Year of Record

DATE EMERGED (64-68) When seedlings first break through surface of soil, record date as month and day, example as above. If there is no germination during that year of record, insert zero (0) in place of date

PROP BY (69-72) Propagated By - SKED, SWCU (soft wood cuttings), HWCU (hard wood cuttings), RTCU (root cuttings), GRAF (grafting), BUDD (budding), LAYR (layering), PIDV (plant divisions)

DATE TRANS (73-77) Date Transplanted - month and day in which plants are transplanted to observation plots or rows. The year is indicated in Year of Record

Card Line J

C USE (2). Card Use - refer to first line of instructions under Card Line I.

PI OR 900 NUMBER (5-10) Must be entered on every line where data is entered

EVAF PHC (11-12). Evaluating Plant Materials Center

YR REC (13-14) Year of Record

PROJECT PLAN NO (16-30) Project Plan Number - insert identifying number of Project Plan

PLOT LOCATION (31-45). Insert letter and number codes assigned on PHC field plans, enter largest unit first, ex. field, block, tier, row, A/2/3/11

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MGT (46-48) Management IH = Irrigation, FT = Fertilized, CL = Cultivated. If any of these are carried out, insert a number 1 under the heading. If not carried out, insert a number 0

ESTABLISHMENT:

MAFI PLID (49-52). Material Planted - use four-letter codes to indicate material planted for observation: SHED - Seed; SUCK - Suckers; PLBR - Plants, bare root; PI BB - Plants, balled and burlaped; WILD - Wildings (or transplanted volunteers); STCT - Stem cuttings; RTCT - Root cuttings; POTD - Potted (general term for several types of containers).

NO PITS (53-56) Number of Plants - planted in observation rows or plot

AGE (57-59). Age of vegetation used to establish observational planting, ex 1-0, 1-1, 2-0.

HT (60-62) Height - average measurement to nearest centimeter.

ST DIA (63-64). Stem Diameter - average diameter of main stem if plants or upright rooted cuttings are used, measurements in millimeters.

LAF SPD (65-67) Lateral Spread - the average lateral spread of branches at time of transplant, measure and record in centimeters.

NO PITS SURV (68-71). Number of Plants Surviving - for use when there are actual plant counts - at time of establishment and at end of each successive growing season as needed. Write in 0 if no plants survive.

NO PLTS MAT FR (72-75). Number of Plants Maturing Fruit - by actual count in year of establishment and in each successive growing season as needed. Write in 0 if no plants mature fruit.

SEED TYPE (76-78). Use three-character codes to indicate seed type:

TRU - True--readily extracted from dry fruits or cones, includes conifers and species bearing pods and capsules.

DRY - Dry--dry seed surrounded by tightly adhering pericarp; includes achenes, samaras, and nut types of fruit.

FLE - Fleishy--seeds easily extracted by macerating the fruit in water or removing husk in a huller

Card Line K:

C USE (2). Card Use

PI OR 900 NUMBER (5-10) Must be inserted on every line where data is entered.

EVAF PHC (11-12) Evaluating Plant Materials Center.

YR REC (13-14). Year of Record

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DEVELOPMENT DATES

BLOOM (16-20) Date (month and day) when at least 50% of the plant(s) that bloom are in full open blossom
FRUIT MATURER (21-25) Date (month and day) when at least 75% of fruit is ripe (or seed is mature)
DORMANT (26-30) Date (month and day) when plants go dormant
LEAVES FALL (31-35) Date (month and day) when at least 75% of the leaves have dropped
RECOVER (36-40) Recovered - date (month and day) when plant buds out and shows signs of spring growth (or recovery)

FLOWER

TYPE (41-56) MONO - monocious, staminate and pistillate flowers on same plant DIOE - Dioecious, staminate and pistillate flowers borne on different plants PERF - perfect, having both stamens and pistils in same flower

COLOR (47-56) Use best basic color description

SIZE (57-60) Average diameter of opened flowers in millimeters

NO PLTS BLOOM (61-64) Number of plants producing flowers

FRUIT

TYPE (65-67) Use one of the following three character codes.

(a) Simple (dry)

- (1) ACH - Achene--small, one-celled dry fruit containing one seed, ex. atriplex
- (2) SAM - Samara--winged achene-like fruit, usually one-seeded, ex. elm, ash
- (3) NUT - Nut--one-celled, one-seeded fruit with a bony, woody, leathery, or papery wall and usually partially or wholly enclosed in a husk, ex. oak, hickory, walnut, beech, hazelnut.
- (4) LEG - Legume--product of a simple pistil splitting along two lines of suture, ex. peas, honey locust (Cedictal)
- (5) FOL - Follicle--product of a simple pistil splitting along a single line of suture, ex. Ceanothus
- (6) CAP - Capsule--product of a compound pistil splitting along two or more lines of suture (two or more carpels), ex. Ceanothus

(b) Simple (fleshy)

- (1) POM - Pome--product of a compound pistil, ex. apple
- (2) DRU - Drupe--usually one-seeded fleshy fruit, ex. cherry
- (3) BERRY - Berry--a several-seeded fruit, ex. persimmon

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(c) Compound

- (1) AGG - Aggregate--a compact cluster of simple fruits traceable to separate pistils of the same flower on one receptacle, ex. tulip poplar
- (2) MUL - Multiple--a compact cluster of simple fruits traceable to the pistils of separate flowers and often borne in a head, ex. aycayona

COLOR (68-77) Use best basic color description

Card Line 1.

C USE (7). Card Use - refer to first line of instructions under Card Line 1.

PL OR SUB NUMBER (5-10). Must be inserted on every line when data is entered

EVAL PHL (11-12). Evaluating Plant Materials Center - use the two-digit FIPS code for state name abbreviation, ex. 04 for Arizona.

YR REC (13-14) Year of Record - use last two digits of year in which data are recorded, ex. 83 for 1983

STEM TYPE (16-18) Use three-character code, ex. ANN = annual or PER = perennial.

LEAF CHARACTERISTICS:

TYPE (19-27). Leaf Type - (DECI = Deciduous, EVER = Evergreen), (HEDF = Hedges, SCAL = Scales, BL = Broad-leaved), space for codes if needed such as: DECI/BI or EVER/NEED Use a "/" (diagonal) between codes.
LENGTH (28-31) Average length recorded to the nearest whole centimeter
WIDTH (32-35) Average width recorded to the nearest whole centimeter.

ROOTS SYSTEM (36-43).

- | | | | |
|------------------|-----------------|-------------------|--|
| (1) B -- Bulbous | (2) D -- Deep | (4) A -- Abundant | fill in four codes if data are available, ex. TA/D/C/F
Use a "/" (diagonal) between codes |
| F -- Fibrous | S -- Shallow | F -- Few | |
| L -- Lateral | | | |
| TA -- Tap | (3) C -- Coarse | | |
| TU -- Tubercous | F -- Fine | | |

SPREADS BY (44-52) SEED, JAYR = layering, RHIZ = Rhizomes, BUCK = Suckers, space for two codes if needed; (use "/" [diagonal] in one of the allowed spaces as needed); eg SEED/RHIZ = Seed/Rhizomes.

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(190-V-NPMM, August 1984)

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CODES (56-80) Five data fields with five spaces each are provided for a PHL to record data unique to a particular assembly or project that are not included in the standard data for initial evaluations. Use Code 1 first and, if additional codes are needed for the same project, continue use of code fields in numerical order. The project plan would also identify the criteria for measuring each code data. The criteria for evaluation can be recorded as either a numerical or alphabetical code. The data recorded in the code fields will be meaningful only to the recording PHL until the data are retrieved and explained in an annual technical report. Do not send explanations of code use to the ADP center.

Card Line 8

L USE (2) Card Use - refer to first line of instructions under Card Line 1

PL OR PLO NUMBER (5-10) Must be inserted on every line where data is entered

EVAL PHL (11-12) Evaluating Plant Materials Center - use the two-digit FIPS code for State name abbreviation, ex. 04 for Arizona

YR REC (13-14) Year of record - use last two digits of the year in which data are recorded, ex. 83 for 1983

PLANT

TYPE (16-20) Write in one of three descriptive words -- TREE, SHRUB, VINE

FORM (21-27) COI = Columnar, PYR = Pyramidal, OVA = Oval, ROU = Rounded, SPR = Spreading, PRO = Prostrate, MAT = Matting, RAM = Rambling, TRI = Triangular, spate for two codes if needed, ex. OVA/SPR for Oval/spreading. Use a "/" (diagonal) between codes in one of the allowed spaces

V1 (28) Vigor One - Rate 1 through 9, with 1 = best, 9 = poorest, use 0 if all plants die

V1 DATE (29-33) Date Vigor One was evaluated, insert month and day, ex. 05/16 for May 16

V2 (34) Vigor Two - rate as in Vigor 1.

V2 DATE (35-39) Date Vigor Two was evaluated, insert month and day, ex. 09/18 for September 18

RATED COMPARISONS

Various characteristics can be evaluated by comparing numerical ratings. The characteristics under Stem, Foliage, Resistance, Ground Cover, and Seed are to be rated on a scale of 1 through 9, with 1 = best and 9 = poorest

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STEM = Stem

AB (40) Abundance
DN (41) Distribution

FOLI = Foliage

AB (42) Abundance
DN (43) Distribution

RESIST = Resistance

DI (44) To disease
IN (45) To insects
CO (46) To cold or low temperatures
HE (47) To heat or high temperatures
DR (48) To drought or extended dry conditions

GCO = Ground Cover

LPR (49) Litter production
LPS (50) Litter persistence
CD (51) Cover density

SEED

AMT (52) Amount
FIL (53) Fill
UN (54) Uniformity
PE (55) Persistence
KQ (56) Keeping quality (on plant)

BASAL AREA CH (57-59) Expressed in centimeters of width of cluster of stems or the DBH (diameter-at-brown-height), whichever best fits the plant's growth habit

CANOPY COVER CH (60-63) Average diameter of spread of canopy or crown in full leaf. Measurement in centimeters.

HT CH (64-67) Average height measured in centimeters

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AMOUNT FRUIT WEIGHTS (68-71) Average weight of mature fruit per plant Measurement in grams Five digits can be recorded here as in the above.

PLTb SURV X (76-78) Plants Surviving - expressed on a percentage basis. May be a more useful indicator in some cases than the number of plants surviving (Card Line J) Space allowed for 100 percent.

Card Lines H and O for REMARKS

Each card line has the same four data fields as preceding Card Lines, follow same instructions.

C. USE (2) Card Use

PI OR 900 NUMBER (5-10) Must be inserted on every line where data is entered

EVAL PHC (11-12). Evaluating Plant Materials Center.

YR REC (13-14). Year of Record

REMARKS (16-80) Use continue narrative statements for significant information not otherwise covered in above data fields Do not enter more characters than the 65 spaces allowed for each Card Line (H & O), this includes the spaces normally occurring between words

Subheading at bottom of form (Plant Name, Accession Number, and Plot Location) is not part of evaluation data. It is provided only as needed for use and filing at the PHC

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(190-V-NPMM, August 1984)

HERBACEOUS PLANT INITIAL EVALUATION

[illegible]

§542.24 SCS-ECS-060, Herbaceous Plant Initial Evaluation

Part 542 - Exhibits

\$542.25 Instructions and codes for entries on herbaceous plant initial evaluation data form (SCS-ECS-060)

Revised April, 1983

INSTRUCTIONS AND CODES FOR ENTRIES ON HERBACEOUS PLANT INITIAL EVALUATION DATA FORM SCS-ECS-060

General Instructions

1. Before any evaluation data can be submitted for storage in the computer, the accessioning procedures must be completed for each plant (accession) being evaluated.
2. Print or type legible, neat entries to insure accuracy.
3. Card Lines -- Lines P through V upon which data are entered.
4. Card Use -- See instructions on page 2 for the purpose and procedures for using this data field.
5. Blank Spaces -- Except for the above situation involving the Card Use space, all blanks will be interpreted to mean that no data are available for that particular field.
6. PI Number (or 900 Number) -- Must be inserted in space 5-10 of any Card Line upon which data are entered.
7. In collecting and submitting data, some data fields will be used only once, other data fields will be used each growing season during the evaluation of an accession.
8. Do not exceed number of spaces allowed in any field of data.
9. Year of Record -- only one year's data can be inserted on any one form SCS-ECS-60.
10. Data to be recorded will be consistent with and identified in the project plan.

Heading:

The following information is not transferred to the computer, it is needed only to identify the source of the form and data during the processing period:

- a. Center - Name of plant materials center
- b. Place - Name of town and state, if not included in PMC name
- c. Technician - Name of person filling out the form
- d. Date - Date the form is filled out at the PMC

Card Line P:

Card Use (2) Card Use - this field of data will be left blank the first time data are submitted for a plant accession number. The following codes are inserted at other times when data are added or corrected: A -- Add Data

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(code is used to indicate that new elements are being added); C--Change Data (code is used to indicate that the data being submitted is changing or correcting an existing element). It is mandatory that no data sheet have mixed codes.

PI OR 900 NUMBER (5-10). Plant Introduction Number - must be inserted on every Card Line where data is entered.

EVAL PMC (11-12). Evaluating Plant Materials Center - use the two-digit FIPS code for State name abbreviation, ex. 04 for Arizona.

YR REC (13-14) Year of Record - use last two digits of the year in which data are recorded, ex. 83 for 1983.

SOIL TAXON (at evaluation site):

SOIL SERIES NAME (16-31). Enter the predominant soil series of the field where the evaluation plot is located.

MODIFIER AND TEXTURE. Enter textural phase. The following codes for soil texture and texture modifiers are used in soil surveys--

TEXTURE MODIFIER (32-35). Enter codes from below, if applicable:

CB--cobbly	GR--gravelly
CBV--very cobbly	GRV--very gravelly
CN--channery	HK--mucky
CNV--very channery	PT--peaty
CR--cherty	SH--shaley
CRV--very cherty	ST--stony or bouldery
CY--cindery	STV--very stony or bouldery
CYV--very cindery	STE--extremely stony or bouldery
FL--flaggy	GY--gritty
FLV--very flaggy	GYV--very gritty

TEXTURE TYPE (36-39). Enter code from below, if applicable:

G--gravel	VFSL--very fine sandy loam
SG--sandy gravel	L--loam
S--sand	SIL--silt loam
CS--coarse sand	SI--silt
FS--fine sand	SCL--sandy clay loam
VFS--very fine sand	CL--clay loam
LCOS--loamy coarse sand	SICL--silty clay loam
LS--loamy sand	SC--sandy clay
LFS--loamy fine sand	C--clay

J-

LVFS--loamy very fine sand SLT--silty clay
 CFS--coarse sandy loam PI--peat
 SL--sandy loam MIF--mucky peat
 FSL--fine sandy loam

Even where the soil series name is unknown, use the codes for texture modifier and texture type if this information is available

STANDARD OF COMPARISON (40-63) Cultivar name, PI or 900 number if standard does not have cultivar (or "variety") name

DATE SEEDS (54-58) Month and day in which seed is planted, ex 04/05 for April 5 or 10/15 for October 15 the year is indicated in Year of Record

DATE EMERGED (59-63) When seedlings first break through surface of soil, record date as month and day as in the example above. If there is no germination during that year of record, insert zero (0) in place of dates

PROP BY (64-67) Propagated By - STD (rhizome), STOR (stolons), RICU (root cuttings), (GJH)

DATE TRANS (68-72) Date Transplanted - Month and day in which plants are transplanted to observation plots or rows. The year is indicated in Year of Record

NO PLTS ESTAB (73-76) Number of Plants Established - number of plants in plots or rows

NO PLTS SURV (77-80) Number of Plants Surviving - actual count of live plants at end of growing season

Card line Q

C. USE (2) Card Use - Refer to first line of instructions under Card line P

PI OR 900 NUMBER (5-10) Must be inserted on every card line where data is entered

EVAL PMG (11-12) Evaluating Plant Materials Center.

YR REC (13-14) Year of Record

PROJECT PLAN NO (16-30) Project Plan Number - insert identifying number of project plan

PIOT LOCATION (31-45) Insert letter and number codes assigned on PM field plans, enter largest unit first, ex field, block, tier, row (A/2/1/11)

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MG (46-48) Management IR = Irrigation, F = Fertilized, CI = Cultivated. If any of these are carried out, insert a number 1 under the heading. If not carried out, insert a number 0

PLANT TYPE (49-54) Insert the proper term that best describes the type of herbaceous plant, ex legume, Grass, Forb, or Vine. Write in complete word

GROWTH HABIT (55-61) Codes: (a) A = Annual, B = Biennial; P = Perennial
 (b) B = Bunch; S = Sol, SO = Solitary
 (c) D = Decumbent; E = Erect, P = Prostrate

At least one entry from each set must be used in the order of sets a-b-c. This block must be completed in its entirety or left blank until a full determination can be made later in the evaluation period--ex, BI/SO/P (Biennial, Solitary, Prostrate)

ROOT SYSTEM (62-69).

(1) B = Bulbous	(2) D = Deep	(4) A = Abundant	Fill in four codes if data available--ex, TA/D/G/F Use a "/" (diagonal) between codes.
F = Fibrous	S = Shallow	F = Few	
L = Lateral			
TA = Tap	(3) C = Coarse		
TU = Tuberosus	F = Fine		
R = Rhizomatous			

SPREADS BY (70-80) Codes: SE = seeds, R = rhizomes, ST = stolons, BU = suckers; T = tillers)
 Use "/" (diagonal) as needed between codes.

Card line R:

C. USE (2). Card Use - refer to first line of instructions under Card line P.

PI OR 900 NUMBER (5-10). As assigned.

EVAL PMG (11-12). Evaluating Plant Materials Center - use the two-digit FIPS code for state name abbreviation, ex. 04 for Arizona

YR REC (13-14). Year of Record - use last two digits of the year in which data are recorded, ex 83 for 1983

REGROWTH

1st DATE (16-20), 2nd DATE (21-25). Month and day that new growth begins after a dormant period, ex, 03/20 = March 20. Regrowth periods can follow winter or summer dormancy or a long drought period. With some species, there may be two growth periods in one Year of Record.

Part 542 - Exhibits

542.25

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FOLIAGE. Rate 1 through 9, with 1 = best and 9 = poorest.

SZ (46) Size
TX (47) Texture
AB (48) Abundance
BL (49) Basal distribution
UN (50) Uniformity of leaf growth on plant
AT (51) Attractiveness - this facet is a rating of the general appearance and overall "eye appeal" of the plant, rating can be affected by leaf color, distribution, abundance, and the appearance of vigor.

FOLIAGE HEIGHT (HT) (32-34). Height - reported in centimeters

FOLIAGE WIDTH (WD) (35-37) Width - reported in centimeters.

RESISTANCE. Rate 1 through 9, with 1 = best and 9 = poorest

DI (38) Disease
IN (39) Insects
CO (40) Cold (low temperatures)
HE (41) Heat (high temperatures)
DR (42) Drought (periods of limited moisture)

FORAGE YIELD. Data fields provide for up to three forage clippings per year if needed, record month and day as in previous data fields, record forage clippings in kilograms/hectare of air dry weight.

CLIP DATE 1 (43-47).
WEIGHT 1 (48-52)
CLIP DATE 2 (43-57)
WEIGHT 2 (58-62)
CLIP DATE 3 (63-67)
WEIGHT 3 (68-72).

CR RATING DATE (73-77) Clipping Response Rating Date - month and day that accession is rated from response to clipping

(R (78). Clipping Response - rate 1 through 9, with 1 = best and 9 = poorest.

Card Line 5:

C_USE (2) Card Use

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Card Line b (cont)

PI OR SUB NUMBER (5-10) Must be inserted on every Card Line where data is entered.

EVAL PNC (11-12). Evaluating Plant Materials Center.

YR REC (13-14). Year of Record.

SEED PRODUCTION 1. Rate 1 through 9, with 1 = best and 9 = poorest.

AMT (16). Amount of inflorescence production. Rating of zero indicates no flowers.
FIL (17). Amount of seed fill. Rate when majority of seed has matured. Rating of 0 indicates No Fill.
UN (18). Uniformity - rating of uniformity of seed production over row or plot.
SHA (19). Shatter - degree of seed shattering.
LOD (20). Lodging - characteristics of stems and leaves falling from an upright position. Lodging is detrimental to seed and forage harvest, so rate the lesser amount of lodging as best or most desirable.
BOOT DATE (21-25). In grasses--the date (month and day) boot stage is observed.
DATE 1st EMERGE (26-30). Date (month and day) first flowers emerge or inflorescence is observed.
BLOOM DATE (31-35). Date (month and day) when at least 50% of the plants (or stand) are in full open blossom.
MATURITY DATE (36-40). Date (month and day) majority of seed or fruit mature
HEIGHT CM (41-45). Measured height in centimeters for average of flower or seed stalk height throughout the row

SEED PRODUCTION 2. Rate 1 through 9, with 1 = best and 9 = poorest.

AMT (46). Amount of inflorescence production. Rating of 0 indicates no flowers.
FIL (47). Amount of seed fill. Rate when majority of flowers have reached maturity. Rating of 0 indicates no fill.
UN (48). Uniformity - rating of uniformity of seed production over row or plot.
SHA (49). Shatter - degree of seed shattering.
LOD (50). Lodging - characteristics of stems and leaves falling from an upright position. Lodging is detrimental to seed and forage harvest, so rate the lesser amount of lodging as best or most desirable
BOOT DATE (51-55). In grasses--the date (month and day) boot stage is observed.
DATE 1st EMERGE (56-60). Date (month and day) first flowers emerge.
BLOOM DATE (61-65). Date (month and day) when at least 50% of the plants (or stand) are in full open blossom
MATURITY DATE (66-70). Date (month and day) majority of seed or fruit mature.
HEIGHT CM (71-75). Measured height in centimeters for average of flower stalk height throughout the row.
DATE DORMANT (76-80). Date (month and day) plants are dormant for a season.

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(190-V-NPMM, August 1984)

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Card Line T

C USE (2) Card UsePI OR 900 NUMBER (5-10) Must be inserted on every Card Line where data is enteredEVAL PHC (11-12) Evaluating Plant Materials Center.YR REC (13-14) Year of Record.

VIGOR

V1 (16) Vigor One - rate 1 through 9, with 1 = best and 9 = poorest. Use 0 if all plants dieV1 DATE (17-21) Date Vigor One was evaluated; insert month and dateV2 (22) Vigor Two - rate as in Vigor One. Use 0 if all plants die.V2 DATE (23-27) Date Vigor Two was evaluated.

STAND

% (28-30) Percent ~ of stand for certain grasses and other plants where mass of growth does not permit practical determination of individual plantsDATE RATED (31-35) Month and day the percent of stand was evaluated.

FLOWER:

COLOR (36-45) Use best basic color description for flowering plants.AB (49) Abundance of flowers Use 1 through 9 rating with 1 = best and 9 = poorest. Insert 0 if no flowers are producedSIZE (50-51) Discard "CM" on form and record average diameter of opened flowers in millimeters.UN (54) Uniformity of distribution Rate 1 through 9, with 1 = best and 9 = poorest.AT (55) Attractiveness of flowers Rate as above.

CODES (56-80) Five data fields with five spaces each are provided for a PHC to record data unique to a particular assembly or project that are not included in the standard data for initial evaluations. Use Code 1 first and, if additional codes are needed for the same project, continue use of code fields in numerical order. The project plan would also identify the criteria for measuring each code data. The code fields will be meaningful only to the recording PHC until the data are retrieved and explained in an annual or special report. Do not send explanations of code use to the ADP Center

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Card Lines U and V

Each Card Line has the following four data fields as previous Card Lines; follow same instructions:

C USE (2) Card UsePI OR 900 NUMBER (5-10) Must be inserted on every Card Line where data is entered.EVAL PHC (11-12) Evaluating PHCYR REC (13-14) Year of Record

REMARKS (16-80) Use concise narrative statements for significant information not otherwise covered in above data fields. Do not enter more characters than the 65 spaces allowed per each Card Line (U & V), this includes the spaces normally occurring between words.

Subheading at bottom of form (Plant Name, Accession Number, and Plot Location) is not part of the evaluation data. It is provided only as needed for use and filing at the PHC.

542.26

Potential Area of Adaptation	<p>Range of adaptation would be primarily the temperate regions of the United States in areas with sufficient amounts of annual rainfall. The lower limit for annual rainfall has not been determined, but kura clover has been introduced in several areas in Utah it has survived the cold winters of Michigan and the hot summers of Louisiana.</p>
Potential Soil Adaptation	<p>Sandy loam silt loam, sandy clay loam, very fine sandy loam, gravelly soils well-drained to poorly-drained soils.</p>
Where Seed Will Be Maintained	<p>Foundation seed block will be maintained at Quickland PWC.</p>
Prepared by	<p>Charles F. Gilbert, Kentucky PWC</p>

<p>UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE</p>	
<p><u>Documentation of a Plant Accession Selected for Advanced Testing</u></p>	
Species:	<p><u>Trifolium amblyum</u> Rich.</p>
Common Name:	<p>Kura clover, Caucasian clover</p>
Plant Symbol:	<p>TRAMS</p>
Accession Number(s):	<p>PI-325489, NM-18698, KY-1282</p>
Origin:	<p>Soviet Union via the USDA-ARS Plant Introduction Station at Geneva, NY</p>
Method of Selection:	<p>Selected from a collection of 120 clover accessions assembled and evaluated at the Quickland Plant Materials Center from 1972-1975. There were 21 kura clover accessions in the collection. All were foreign introductions from the Near East. PI-325489 kura clover was selected as the superior strain for its vigorous rhizomatous growth, persistence, and better disease and insect resistance.</p>
Description:	<p><u>Trifolium amblyum</u> is a perennial cool-season sod-forming legume. It is strongly rhizomatous, resistant to frosts, winter hardy and persistent. Limited investigation indicates crude protein and digestibility for kura clover is similar to alfalfa. Seedling growth is slow and may limit or complicate stand establishment.</p>
Anticipated Conservation Use:	<p>The potential use of PI-325489 kura clover appears to be primarily as a pasture legume. Its strongly spreading rhizomatous character may help in keeping it in pastures with grasses. Its relatively low-growing characteristic may reduce its value for making hay. Once established, the vigorous growth of PI-325489 kura clover along with its rhizomatous spread and high foliage production, make it a potentially desirable species for use in tall fescue or other cool season pastures.</p>

542.26 Documentation of a plant accession selected for advanced testing

542-70

(190-V-NPMM, August 1984)

Please return a completed copy of this form along with a copy of your transmittal letter to:

Reed E. Barker
USDA-WAS
Northern Great Plains Research Center
P. O. Box 459
Mandan, ND 58554

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
Western Region
National Seed Storage Laboratory
Fort Collins, Colorado 80523
STORAGE APPLICATION
For Crop Registration (C-852)
or other Long-Term Storage

From _____
Address _____
Kind of seed _____ Origin _____
Amount requested 10,000 seeds for small-seeded or 5,000 seeds for large-seeded
populations and cultivars; 500 seeds for parental lines and germplasms.
Botanical name _____
Agronomic or horticultural variety _____
Synonyms _____ Identification numbers _____
Crop year of seed _____ Is seed available through commercial channels? _____ How long? _____
Do you plan to maintain this variety or stock? _____
May other researchers obtain this seed from you? _____
What seed treatment has been used on this seed? _____
Can arrangements be made with your administration for seed increase when needed? _____
Person and/or Agency authorized to enter such increase agreement: _____
Name _____ Position _____
Address _____

Laboratory Accession No. _____ ISSL Serial No. _____
Date Received _____ Room _____ Rack _____ Tray _____

SPECIAL NOTICE
Please provide plant description, maturity, disease, and insect resistance information and references to published descriptions. (If possible, please send copies.)
(If more space is needed, please use reverse side.)

§542.27 Storage application for Crop Registration (C-852) or other Long-Term Storage and abbreviated policy statement

542.27

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

NATIONAL SEED STORAGE LABORATORY
Colorado State University Campus
Fort Collins, Colorado 80521

ABBREVIATED POLICY STATEMENT

1. The Laboratory is a federal facility and all seed accepted for storage becomes federal property.
2. Only seed will be accepted for storage.
3. Valuable seed stocks will be accepted by the Laboratory from federal and state institutions, commercial seed interests, and private individuals.
4. Any bona fide research worker of the United States, its territories, and possessions, can receive seed from collections stored at the Laboratory, subject to restrictions in item 5. However, seed will not be provided by the Laboratory if they are available commercially or are in working stocks of research agencies. The Laboratory will suggest sources of supply.
5. Both public and private donors of specific lots of valuable seed stocks or seed of new varieties may retain for a period, not to exceed 5 years, the exclusive right to withdraw or permit withdrawal of portions of such seed, provided the optional restriction is clearly indicated at the time the seed lot or sample is deposited. No seed collection can be withdrawn in its entirety. After the time limit has expired, and on seed lots or samples deposited without this restriction, all seed deposited at the Laboratory will be available to any bona fide research worker, whether public or private, or the United States, its territories, or possessions.
6. The Laboratory will not hold bulk supplies or seasonal stocks.
7. The Laboratory will issue periodic inventories of the stocks held in storage to inform research workers of materials available.
8. Only clean seed of reasonably high germination is acceptable for storage. If seed of low viability (below 60 to 65 percent germination) is received, they will be held on a tentative basis until the donor is able to provide replacement seed of higher viability (75 percent germination or better).
9. No charge will be made by the Laboratory for furnishing seed.
10. If seed have been accepted officially, the Laboratory will be responsible for the increase of stocks if, during storage, viability drops to a point that there is danger of loss of the accession or if stocks become depleted as a result of seed distribution.
11. The Laboratory will not assume responsibility for replenishing stocks if the accessions received are subminimal in quantity or in viability.
12. The principal objective of the Laboratory is long-time holding of valuable seed. Research projects related to the Laboratory's objective

(physiological and pathological problems in seed viability and longevity) will be conducted at the Laboratory

In addition to the policy above, recommendations have been made as to what constitutes "valuable seed." The following categories of seed will be accepted by the Laboratory

New Varieties

All newly introduced varieties, whether of private, public, or commercial origin, including registrations from varieties continuing in current use

Current Varieties

Varieties currently in use and under registration by respective crop group organizations, or otherwise documented as to specific origin and distinguishing characteristics. This group includes varieties approaching obsolescence that have been superseded by new or currently popular varieties

Open-Pollinated Varieties

Stocks representing earlier varieties or types of specific crops that have been or will be replaced in the commercial field by hybrids.

Obsolete Genotypes

Samples representing holdover material from earlier research programs and of no immediate interest

Genetic Stocks

Stocks of academic and genetic interest, such as marker genes, mutants, translocations, aneuploids, trisomics, and other chromosomal aberrations. Establishment of such stocks, if in a heterozygous state, is the obligation of the donor. For the latter type of stocks, the Laboratory serves only as an insurance against loss.

Plant Introductions

From regional and federal introduction stations or other agencies (SCS) as seed is increased beyond "working stocks."

All inquiries concerning minimum quantities of seed required for specific crops, documentation, seed condition or quality, and other routine information should be addressed to the USDA, National Seed Storage Laboratory, Colorado State University Campus, Fort Collins, Colorado 80521.

542-72

(190-V-NPMM, August 1984)

Maintenance of Breeder and Foundation Seed

Breeder and Foundation Fields

Plant materials centers are responsible for maintaining viable, genetically pure breeder seed of the varieties they originate. They are also responsible for maintaining foundation seed or for arranging for its maintenance to insure that agencies or agents other than the originator do not have a monopoly.

"Breeder seed shall be seed or vegetative propagating material directly controlled by the originator or, in some cases, the sponsoring plant breeder or institution, and which provides the source for initial and recurring increase of foundation seed" (I.C.A. definition).

Breeder blocks of foundation fields are to be maintained as required to provide adequate quantities of viable seed. The seeds and seed storage characteristics are to be considered. Maintenance can be dropped only with the concurrence of cooperating agencies and regional NMS's.

The Experiment Station Committee on Organization and Policy (ESCOMP)

The requirements of ESCOMP are to be met.

This policy statement was developed by an experiment station committee, IAS, and SCS. The latest revision is dated 1972. It covers both field and horticultural crops and outlines the policy to be followed in testing, developing, releasing, and registering new varieties.

Cooperative Crop Improvement Associations

SCS is to cooperate with crop improvement associations in developing standards and meeting such standards. Requirements for the production and handling of breeder and foundation seed with respect to:

1. Source of seed stocks
2. Genetic purity
3. Isolation requirements
4. Roguing
5. Seed cleaning, and
6. Seed quality—purity and germination.

When a new or improved seed-propagated variety is released, breeder seed are to be forwarded to the ARS Seed Storage Laboratory, Fort Collins, Colorado for safekeeping. Larger lots can be safely stored under locally controlled atmospheric changes. Vegetatively propagated materials are to be maintained locally.

Each new or improved variety is to be described and characterized in enough detail to record its distinguishing features and set it apart from common or other similar varieties, i.e., vigor, height, leafiness, color, hardness, pubescence, disease resistance, lignin, or other features. Such descriptions are a key to the recognition of the variety and maintenance of breeder seed.

From time to time, and for various reasons—genetic drift, seed mixtures, or loss of viability—it is necessary to reconstitute breeder seed. There are two types of material, which require different treatment.

1. Self-pollinated, apomictic, or vegetatively propagated material. This material generally is of pure lines and has a narrow gene base.
2. Cross-pollinated, highly variable material, usually has a broad gene base.

In reconstituting breeder seed or stock, the oldest and nearest to the original source of viable seed or vegetative material are to be used.

Type 1.—Self-pollinated, apomictic, or vegetatively propagated material require a minimum of 100 spaced plants. These plants are to be established on clean land (land on which no grain of the specific species or cross fertile species has been grown in the last 5 years) and maintained free from mixtures. Isolation is to be a minimum of 165 feet from other plantings of the same species. All off-type, aberrant, or other plants not conforming to the original criteria are to be removed before seed set.

Type 2.—Cross-pollination species require not less than 200 spaced plants. They are to be established on clean land (see above definition). Isolation distance must be a minimum of 80 rods from crossable material. Inasmuch as a continued wide gene base is desired, the least desirable 25 percent, but not more, of the total plants should be rogued out before pollination. Original descriptions and criteria are to be adhered to in retaining desirable plants, but because a static gene base is hardly possible, improvement in the outstanding desirable characteristics is to be constantly sought.

If a variety is a polycross or consists of a composite of strains, it is important to maintain each component under isolation as a separate entity and to reconstitute the breeder seed in the same proportion as the original breeder. It is suggested that breeder seed be reconstituted at not more than 10-year intervals. To maintain seed viability of certain species, a shorter interval may be required.

For annual species, seed are to be saved only the first year. For perennial plants, no seed are to be saved until the second year. Steps are to be taken to prevent seed volunteering if seed are to be saved the second, third, and following years.

Isolation requirements may vary by state but should not be less than the standards for foundation seed. Adherence to international standards is recommended.

Breeder seed are to be rogued and cleaned to insure that they contain no seed (primary, secondary, or noxious) and no other crop seed. Genetic purity is basic. Foundation purity and germination standards are recommended.

542.29

TEXAS DEPARTMENT OF AGRICULTURE
EUGENE V. BROWN, COMMISSIONER

APPLICATION TO THE STATE SEED AND PLANT BOARD AND TEXAS DEPARTMENT OF AGRICULTURE
FOR APPROVAL OF A VARIETY UNDER THE TEXAS SEED CERTIFICATION PROGRAM

Name of Applicant Knox-Clay Plant Materials Center, Soil Conservation Service
Address Route 1, Box 195 Knox City, Mo 64429
Name of Breeder (if different from Applicant) _____
Address _____

A. Variety Name or Temporary Designation 'Lonestar'
Geamense, Indigonoseae, Sorghastrum vulgare (L.) Nash - Tested as P41-502
(Family, Genus, and Species)

Check box below where attachment is used to provide information requested. (See reverse
side of form for instructions.)

B. ☒ Origin and Breeding History of the Variety.
C. ☒ (1) Botanical Description of the Variety.
(2) Objective Description of the Variety.
D. ☒ Evidence (data, graphs, charts, pictures, etc.) supporting identity of the
variety and any statements or claims made concerning its performance char-
acteristics (e.g. field, insect or disease tolerance, lodging)
E. ☒ Area of Adaptation.
F. ☒ Procedure for Maintaining Stock Seed Classes and Number of Generations desired
for Multiplication of Variety. If less than foundation, registered and cer-
tified, indicate way
G. ☒ Description of how variety is to be constituted if a particular article or re-
production or multiplication is required.
H. ☒ Additional restrictions, if any, with respect to geographical area of seed pro-
duction, age of stock, or other factors affecting genetic purity
I. ☒ Sample of Seed.
Will application be made to Plant Variety Protection Office? Yes ☐ No ☐
If Yes, will the application specify that the variety is to be sold by variety name
only as a class of Certified Seed? Yes ☐ No ☒ Undecided
Give names of certifying agencies expected to certify seed. _____
Texas Department of Agriculture
Date _____ Signature of Applicant _____

TXA-5279A (cont'd other side)

§542.30 Documentation for a plant release

[illegible]

§542.29 SCS-ECS-581, Inventory and Allocation
of Plant Materials

B. ORIGIN AND BREEDING HISTORY OF THIS VARIETY

Indiangrass is one of the four major species that comprises 81.5 percent of the perennial grasses on a low prairie range site in the tall grass prairie of the Great Plains (Don D. Boyer, *Activities and Grazing Preferences*, 1961.) Grazing preferences show that livestock begin to select Indiangrass about the time serotinus starts to mature.

'Cheyenne' Indiangrass, the most commonly used commercial variety starts to boot at Knox City as early as July 15, while some of the southern ecotypes didn't boot until September 15. Since there is a need of an adapted variety of Indiangrass south of the adapted range of 'Cheyenne', Indiangrass, a project was initiated to find such an Indiangrass.

'Luzerna' Indiangrass was collected from a native stand on the S. Kirby ranch east of Loreta, Lampasas County, Texas, in 1964 by Soil Conservation Service personnel. It was found growing on a Denton clay loam soil in a clay loam site.

In 1965 the original seed was cleaned at the Knox City Plant Materials Center and assigned the test number PM-802. It was planted in an observation area with 29 other collections.

In 1967 two selections - PM-802 and PM-135 - were made from the assembly. These were established vegetatively or from the original seed collection in small isolated blocks for seed increase in 1968. Seed harvested from these small increase blocks was used to plant larger fields in 1969. Seed for field plantings off-center was harvested from the largest isolated fields of PM-135 and PM-802 during the period 1969-1974. In 1975 the field of PM-135 was destroyed because of repeated lodging problems, lower seed production and poorer performance in field conditions. PM-802 was selected as the superior strain, and continued seed production for additional field studies was made during 1975-1979. It was assigned a PI number of 434362.

(Reverse Side)

APPLICATION TO THE STATE SEED AND PLANT BOARD AND TEXAS DEPARTMENT OF AGRICULTURE FOR APPROVAL OF A VARIETY UNDER THE TEXAS SEED CERTIFICATION PROGRAM

INSTRUCTIONS

General

Send application to Don Aune, Secretary, State Seed and Plant Board, and Director, Seed Division, Texas Department of Agriculture, P. O. Box 12847, Austin, Texas 78711. All items on the form are self-explanatory unless noted below.

Item

B. Origin and breeding history of the variety.

1. Genealogy, including public and private varieties, lines, or clones used, and the breeding method.
2. Details of subsequent stages of selection and multiplication.
3. Type and frequency of variants during reproduction and multiplication. State how these variants may be identified.
4. Evidence on stability.

C. Description of the variety.

1. Special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage, and the fruiting stage. Description of the mature plant and comparison with similar commercially available varieties grown under the same conditions.
2. 1/ Copy of a completed Objective Description form for the crop as provided by the Seed Division, Texas Department of Agriculture, if such form is available.

2. Provide evidence (data, graphs, charts, pictures, etc.) supporting the identity of the variety. If statements or claims are made concerning performance characteristics, such as yield, tolerance to insects or diseases, or lodging, there must be evidence to support such statements. Statistical analysis of data is encouraged.

1/ The completed Objective Description form (Exhibit C) as provided by the U.S. Plant Variety Protection Office, if such form is available for the crop may be used in lieu of the Texas form.

542.30

D. EVIDENCE, ETC. - Knox City Plant Materials Center

'Lometa' indiangrass was assembled along with 28 other collections and/or commercial varieties at the Knox City Plant Materials Center in 1965. Table 1 is a summary of all data collected on the original assembly. Both 'Lometa' and PM-335 were selected for further evaluation due to their apparent foliage and seed production potential, resistance to cold, disease, and insects; and later maturity in comparison to the 'Cheyenne' and the 'Tejas' commercial varieties.

An advanced study was initiated in 1968 at the Knox City center that measured not only the above data, but also included forage yields. The forage production of 'Lometa' indiangrass was shown to be superior to all other indiangrass varieties, including 'Cheyenne', 'Tejas', and 'Gascam'. Table 2 and Table 3 summarize this data.

Another evaluation study also initiated in 1968 is included in Table 4. The data compares 'Lometa' against several experimental lines, commercial varieties, and selected accessions made from native stands existing in Oklahoma. The 1971 Knox City Annual Report ranked 'Lometa' indiangrass in this study first in stand, seedling vigor, leaf percentage, and seed production over other entries. The forage yield of 'Lometa' was 1.90 times that of 'Cheyenne' indiangrass used as a standard for comparison. Variety of 'Lometa' was about one month later than 'Cheyenne' indiangrass at Knox City.

C. BOTANICAL DESCRIPTION OF THE VARIETY

Root and Stem: Perennial culms strictly erect from short stout, scaly rhizomes, mostly 0.8 to 2.0 m. tall. Culm nodes hispid with strictly erect hairs. Sheaths glabrous, very infrequently slightly hispid continued at the apex as a stiff membranous ligule 2.5 mm. long, this usually developed marginally as thickened, pointed sheath auricles. Stem bluish-green to glaucous. Stems tough and hard at maturity. Plants in large bunches.

Leaves: blades long, linear, flat, mostly 5-13 mm. broad, tapering to a narrow base and an attenuate apex.

Inflorescence: Inflorescence a loosely contracted panicle, 15-30 cm. long. Upper most branchlets, pedicels, and glumes hispid with silvery hairs. Spikelets 6-8 mm. long, the glumes light brown or straw colored. Awn of the lemma mostly 12-17 mm. long, geniculate, tightly twisted below the bend, loosely twisted and slightly spiraling above the bend.

Seed: The seed unit is 6-8 mm. long and 1 1/2 mm. wide. There are about 165,400 seed per pound (76,385 seed per kilogram). Seed maturity at Knox City occurs about the middle of November, approximately 2 to 4 weeks later than 'Cheyenne' and about 2 weeks later than 'Tejas'. Seed quality produced at the Knox City Plant Materials Center has averaged near 90 percent purity and 70 percent germination.

542-76

(190-V-NPMM, August 1984)

Table 1

Surplus/Free surplus Bollinger Assembly 1965 Finalize, Initial Evaluation

Yr	Re	of	Height	Planting Date	Emergence Date	Root Date	Maturity Date	Height at Maturity (in)	1/ Stand	2/ Vigor	3/ Foliage	4/ Production	5/ Root	6/ Resistance	7/ In
102	65		Louanna, Tx	5/20	6/1	9/24	11/19	46-48x10	3	3	3	3	3	3	3
66						8/11	9/29	71-10x28			3	3	3	3	3
67							9/27	53-79x22			3	3	3	3	3
115	65		Houston, Tx	5/20	5/27	9/13	11/19	26-40x10	1	3	3	3	3	3	3
66						8/31	9/21	66-30x30			3	3	3	3	3
67							9/18	63-24x33			3	3	3	3	3
113	65		Hudding, Tx	5/20		8/31	9/21	51-40x44	3	3	3	3	3	3	3
66						9/18		60-31x30			3	3	3	3	3
67											3	3	3	3	3
119	65		Bryan, Tx	5/20	NC										
121	65		Hongdred, Tx	5/20	NC										
135	65		Athens, Tx	5/20	NC										
136	65		Caldwell, Tx	5/20	NC										
137	65		Crockett, Tx	5/20	NC										
160	65		Wheeler, Tx	5/20	5/27	8/31	9/13	70-20x24	3	3	3	3	3	3	3
66						7/15	9/21	62-21x31			3	3	3	3	3
67							9/18				3	3	3	3	3
162	65		Crookland, Tx	5/20	NC										
166	65		Paup, Tx	5/20	NC										
212	65		Beard, Tx	5/20	5/27	8/31	11/19	45-13x12	3	3	2	3	3	3	3
46						8/31	9/21	80-36x10			3	3	3	3	3
67							9/18	62-31x26			3	3	3	3	3
240	65		Hartshorn, Tx	5/20	5/24	8/31	11/19	40-46x3	3	3	3	3	3	3	3
66						8/31	9/21	67-12x20			3	3	3	3	3
67							9/18	56-13x25			3	3	3	3	3
242	65		Clawde, Tx	5/20	5/27	8/31	11/19	38-41x12	3	3	3	3	3	3	3
66						8/31	9/21	60-21x46			3	3	3	3	3
67							9/18	51-21x31			3	3	3	3	3
243	65		Hartshorn, Tx	5/20	5/27	8/31	11/19	42-48x8	3	3	3	3	3	3	3
66						8/31	9/21	64-16x24			3	3	3	3	3
67						9/18	59-24x10				3	3	3	3	3
244	65		Herkel, Tx	5/20	NC										
411	65		Herkel, Tx	5/20	5/24	9/13	11/19	32-48x9	3	3	3	3	3	3	3
66						8/31	9/21	73-40x40			3	3	3	3	3
67							9/18	65-12x36			3	3	3	3	3

1/ Stand: 1 = Excellent
 2 = Good
 3 = Medium
 4 = Poor
 5 = Very poor

2/ 46 In/10 = 46/100 of seed being 16/10000 height of leaves 10/10000 width of foliage expressed in inches

D-2

Table 1 (Continued)

Yr	Re	of	Origin	Planting Date	Emergence Date	Root Date	Maturity Date	Height at Maturity (in)	1/ Stand	2/ Vigor	3/ Foliage	4/ Production	5/ Root	6/ Resistance	7/ In
194	65		Boerne, Tx	5/20		8/31	9/21	28-10x22	4	3	3	3	3	3	3
66							9/18	34-10x25			3	3	3	3	3
67							9/18	35-14x14			3	3	3	3	3
199	65		New Boston, Tx	5/20	5/31	9/13	11/19	48-14x10	3	3	3	3	3	3	3
66						8/31	9/21	70-10x10			3	3	3	3	3
67							9/18	55-20x21			3	3	3	3	3
200	65		Lufkin, Tx	5/20	5/31		9/21	30-18x17			3	3	3	3	3
66						8/31	11/19	36-48x7			3	3	3	3	3
67						9/18	64-10x25				3	3	3	3	3
201	65		Temple, Tx	5/20	6/1	8/31	9/21	35-14x14			3	3	3	3	3
66						8/31	11/19	45-10x10			3	3	3	3	3
67						9/18	73-10x10				3	3	3	3	3
204	65		Fredericksburg, Tx	5/20	5/27	9/13	11/19	42-14x8	3	3	3	3	3	3	3
66						8/31	9/21	67-40x24			3	3	3	3	3
67							9/18	58-16x10			3	3	3	3	3
205	65		Fredericksburg, Tx	5/20		8/31	9/21	60-45x24	1	3	3	3	3	3	3
66						8/31	9/21	60-45x24			3	3	3	3	3
67							9/18	58-13x21			3	3	3	3	3
206	65		Hubbard, Tx	5/20	5/24	8/31	11/19	38-48x6	3	3	3	3	3	3	3
66						8/31	9/21	60-14x14			3	3	3	3	3
67							9/18	58-13x21			3	3	3	3	3
207	65		San Marcos, Tx	5/20	6/1	9/13	11/19	25-12x8	3	3	3	3	3	3	3
66						8/31	9/21	49-10x22			3	3	3	3	3
67							9/18	48-16x11			3	3	3	3	3
208	65		Heller Seed Co	5/20	5/27	9/13	11/19	48-16x11	1	3	3	3	3	3	3
66						8/31	9/21	62-10x40			3	3	3	3	3
67							9/18	64-19x30			3	3	3	3	3
209	65		Tex. Reg. Fowl	5/20	5/27		11/19	56-20x13	1	3	3	3	3	3	3
66			'Tajon'			8/31	9/21	72-10x25			3	3	3	3	3
67							9/18	72-10x24			3	3	3	3	3
215	65		Houston, TXC	5/20		9/13	11/19	44-12x9	1	3	3	3	3	3	3
66			'Chayenne'			8/31	9/21	70-23x24			3	3	3	3	3
67							9/18	67-21x31			3	3	3	3	3

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Table 3

Ranking of Indiangrass Assembly
Forage Volume and Forage Quality

PHT No.	Forage Volume*	Numerical Ranking	Forage Quality Indicator**	Numerical Ranking
802 'Lometa'	214444.4	1	508.3	1
113	66837.2	10	145.9	10
160	35952.4	16	94.0	15
212	98888.9	6	288.9	3
335	122011.1	3	175.0	7
433	128055.5	2	272.2	4
801	100416.7	4	170.8	8
803	83333.3	7	394.5	2
805	72222.2	8	193.3	5
807	45966.3	13	84.7	17
808	99809.5	5	139.9	12
809 'Tejas'	72015.9	9	129.8	14
875 'Chayenne'	61444.4	11	130.0	13
980	43452.4	14	81.2	18
997	26214.3	19	77.4	19
998	30095.2	18	147.6	9
999	59285.7	12	190.5	6
1071 (Western)	36071.5	15	89.3	16
1144	30182.5	17	142.0	11

* Forage Volume = The average of measurements at maturity (1971) of:
(height x width² ÷ leafiness production rating) from Table 2.

** Forage Quality Indicator = The average of: (clipping dry weight ÷ leafiness production rating) from Table 2.

Table 4

Assembly of Indiangrass - 1968 Planting, Initial Evaluation

PHT No	Tr of	Origin	Planting Date	Emergence Date	Seed Date	Maturity Date	Height at Maturity (in.)	1/ Stand	1/ Vigor	1/ Production	1/ Resistance
802	68	Lometa County, TX	5/3		9/23	11/15		1	3		
809	68	Renner, TX	5/3		9/23	11/10	61-50x36 2/	1	3	3	1
875	68	Henderson PWC	5/3		9/23	10/20	48-40x20	3	3	7	1
875	68	'Chayenne'	5/3		9/23	10/20	42-30x20	3	7	3	1
1071	68	OSU	5/3		9/23	11/10	46-37x16	1	5	5	5
1144	68	New Mexico	5/3		9/23	10/10	57-31x16	1	3	3	3
1144	68	'Liane'	5/3		9/23	10/10	58-30x20	1	3	3	3
1326	68	Wauke, Ok.	5/3		9/23	10/20	55-31x16	3	5	5	3
1326	68		5/3		9/23	10/20	55-31x16	3	7	7	3
1326	68		5/3		9/23	10/20	56-43x16	3	5	3	3
1326	68		5/3		9/23	10/20	50-27x26	3	5	3	3
1443	68	ESU	5/3		9/23	11/10	50-43x12	3	5	5	3
1443	68	ESU	5/3		9/23	10/20	48-30x36	3	5	3	7
1444	68	ESU	5/3		9/23	10/20	36-36x12	7	7	7	7
1444	68	ESU	5/3		9/23	11/10	40-26x26	7	7	3	7
1444	68	ESU	5/3		9/23	10/20	40-26x12	5	5	7	9
1444	68	ESU	5/3		9/23	10/20	40-14x22	5	7	7	7

1/ Ratings: 1 - Excellent
3 - Good
5 - Medium
7 - Fair
9 - Very poor

2/ 61-50x36 = 61/height of seed heads; 50/average height of leaves; 36/average width of tillage expressed in inches.

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(190-V-NPMM, August 1984)

Table 4 (Continued)

PHE No	Tr of Rec	Origin	Planting Date	Emergence Date	Root Data	Stability Date	Weight at Maturity (in.)	Stand	Vigor	Production Foliar	Seed	Resistance Co	BI	Ta
1445	68	KSU	5/3		9/1	10/20		5	7					
	69	Mo 3				10/20	45 40x12	5	5	5	7			
	70					9/2	10/10	5	5	7	7	1	1	1
1713	71	Durant, OK	5/3		9/25	11/10		9	7					
	68						54-16x12	7	5	5	7			
	69					11/1	60 18x16	7	5	7	7	1	1	1
1724	71	Haurika, OK	5/3		10/15	11/15		5	5					
	69					10/20	54 40x12	5	5	5	7			
	70				9/2	11/1	50-18x16	5	5	5	7	1	1	1
1715	71	McAlester, OK	5/3		10/15	11/10		5	7					
	69					10/10	59 40x16	5	5	5	7			
	70					10/20	55 20x14	5	5	5	7	1	1	1
1716	71	McAlester, OK	5/3		10/15	11/14		5	7					
	69					10/20	60 41x12	5	5	5	7			
	70				9/1	11/1	50 18x10	5	5	7	7	1	1	1
1717	71	Hughes Co., OK	5/3		9/15	11/14		5	7					
	69				9/10	10/20	54 40x16	5	5	5	7			
	70				9/2	10/20	55 20x10	5	5	5	7	1	1	1
1718	71	Adams, OK	5/3		10/15	11/14		5	7					
	69					10/20	60-39x16	5	5	5	7			
	70				9/2	10/20	57 18x10	5	5	5	7	1	1	1
1719	71	Greedy Co., OK	5/3		10/1	11/1		5	7					
	69					10/20	60 40x16	5	5	5	7			
	70				9/2	10/10	60 21x10	5	5	5	7	1	1	1
1720	71	Hughes Co., OK	5/3		9/15	11/10		5	7					
	69					10/20	55-38x20	5	7	7	7	1	1	1
	70				9/2	10/20	48-18x14	5	7	7	7	1	1	1

D-11

Quality Data: A project was initiated in May 1976 in cooperation with Dr. Ethan Holt, professor, and the Texas Agricultural Experiment Station, to determine the digestibility and protein content and the variation of these factors throughout the growing season for several plant material accessions. IVDMM analysis of the 1977 and 1978 clippings from the Knox City production fields showed 'Lomata' to be consistently higher than 'Selection 75' kleingrass or 'Alamo' switchgrass. Results for 1977 are shown in Table 5.

Table 5

In Vitro Fermentation Analysis of Samples from
SCS-Knox City Plant Materials Center, 1977*
(Samples run 5-2-78)

Date of Sample	Kleingrass PMT-75 'Selection-75'	Indiangrass PMT-802 'Lomata'	Switchgrass PMT-780
4-19	61.8		
5-16	55.2		
6-17	47.4	!	
7-15	48.6	!	
8-18	48.9	!	
9-16	45.8	!	
10-18	39.2	!	

* Data supplied by Dr. Ethan Holt, Professor,
Science, Texas A&M University, College Sta

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A recent study, Table 8, was initiated at the Knox City Plant Materials Center in 1978 to compare hay production between accessions grown at the Center.

Table 8

Dry Matter Forage Production of PMC Seed Production Fields (Pounds/Acre)*

	1978	1979	Avg
	Spring	Fall	Total
'Selection-75' kleingrass	3523	6032	9560
'Alamo' switchgrass	-	8911	8911
'Lometa' indiangrass	-	10545	10545
			10197
			10371

* All production trials on the Center are managed by seed production and the results are reported as seed production. This data should only be used as a comparison between accessions grown on the Center and not as a guide for actual forage production in a pasture or range situation. (Knox City Annual Report - 1979)

Since these are seed production fields, they were fertilized annually. 'Selection 75' kleingrass was fertilized with 60 lbs N, 20 lbs P₂O₅, and 5 lbs K₂O in the spring and topdressed with 60 lbs N again in August. Both the 'Alamo' and the 'Lometa' were fertilized only once with 60 lbs N, 20 lbs P₂O₅, and 5 lbs K₂O in July. Visual observations on fertilization trials at the Center indicate fertilized accessions produce a greater abundance of forage, seed heads, and regrowth much quicker after haying.

Tables 6 and 7 are 1978 data from the same project for 'Lometa' indiangrass, 'Alamo' switchgrass, and 'Selection 75' kleingrass. Table 6 is IVMD for plots clipped once at three dates during the growing season. Table 7 is IVMD results for plots clipped and regrowth clipped on subsequent clipping dates.

Table 6

IVMD of Selected Accessions 1/ - Initial Clipping
Knox City Plant Materials Center, Knox City, Texas, 1978

Date of Clipping	'Lometa' indiangrass	'Alamo' switchgrass	'Selection 75' kleingrass
	\bar{x}	\bar{x}	\bar{x}
6/15	57.5*	50.8*	54.8
8/15	56.7	52.5	-
10/15	49.0	38.5	46.1

* Average of two clippings.

Table 7

New Growth and Regrowth Analysis of Selected Accessions 1/
Knox City Plant Materials Center, Knox City, Texas, 1978

Date of Clipping	'Lometa' indiangrass	'Alamo' switchgrass	'Selection 75' kleingrass
	\bar{x}	\bar{x}	\bar{x}
8/15	54.0	45.1	50.9
9/15	49.0	42.8	47.5
10/15	51.3*	44.4	51.2*

* Average of two clippings.

This information indicates the forage quality cattle grazing at this location might find at different dates during the year, or what they might find under continuous grazing. No fertilization practices were utilized for the project and the only irrigation water applied was that to establish the stand.

1/ Laboratory data furnished by Dr. Ethan Holt, Professor, Department of Soil and Crop Sciences, Texas A&M University, College Station, Texas.

Off-Center Plantings

Bergman, Arkansas. Forage quality of indiangrass has also been studied at other locations. Several plant materials are being observed at the Boone County Conservation District's grass plots at Bergman, Arkansas. Alan Heirman, district conservationist at Harrison, presented data at the SRH meeting at San Diego in 1980 concerning several warm- and cool-season plant materials at this location. Table 9 shows the crude protein throughout the growing season for several indiangrass strains. 'Lometa' compared favorably to 'Cheyenne' at this location.

Table 9

Quality Data - Warm-Season Grass Study - Bergman, Arkansas
Percent Crude Protein by Clipping Date*

	5/9	5/24	6/9	6/26	7/10	7/31	8/15	Avg.
'Lometa' (PMT-802) indiangrass	0	0	11.7	8.1	7.1	7.6	4.7	7.8
PMT-335 indiangrass	0	0	12.3	8.4	6.1	5.7	7.6	8.0
MI-5734-73 yellow indiangrass	0	0	12.4	8.2	7.2	6.0	4.2	7.6
'Cheyenne' yellow indiangrass	0	0	12.8	9.8	6.5	7.6	4.7	8.3

* Data furnished by Alan Heirman, District Conservationist, Harrison, Arkansas.
Forage quality analysis was furnished by the University of Arkansas.

'LOMETA' - Harvesting and Cleaning Data

'Lometa' is a late-maturing indiangrass variety, generally harvested sometime between late October and mid-November. The harvest method most commonly used is direct combining. The variety can be swathed and combined and has also been machine stripped with varying degrees of success.

Combined or stripped seed must be dried before cleaning or storage. The seed can either be floor dried or dried by using forced air with or without heat application. The seed should be hammermilled to remove or trim subtending appendages and break up the stem material harvested with the seed. Any type of cleaning mill can be used provided the right screen sizes are available. Screen numbers 14, 12, and 1/21 are commonly used at the PMG.

Seed Yield and Establishment Data

There are about 168,400 seeds per pound. Seed maturity is approximately two to four weeks later than 'Cheyenne' and about two weeks later than 'Tejas'. Seed quality produced at the Knox City Plant Materials Center has averaged near 90 percent purity and 70 percent germin.

'Lometa' indiangrass has shown excellent seedling v to establish readily. It has proven to be abundant good seed yields at the Knox City Plant Materials C amount of irrigation water applied. Over an 11-year the average seed yields have been about 182 pounds was 379 pounds per acre; but due to adverse weather pollination and seed-fill stages in 1979, a light y acre was harvested. Seeding rates are recommended broadcast or drilled, and 1.7 PLS/acre for 36- to 4

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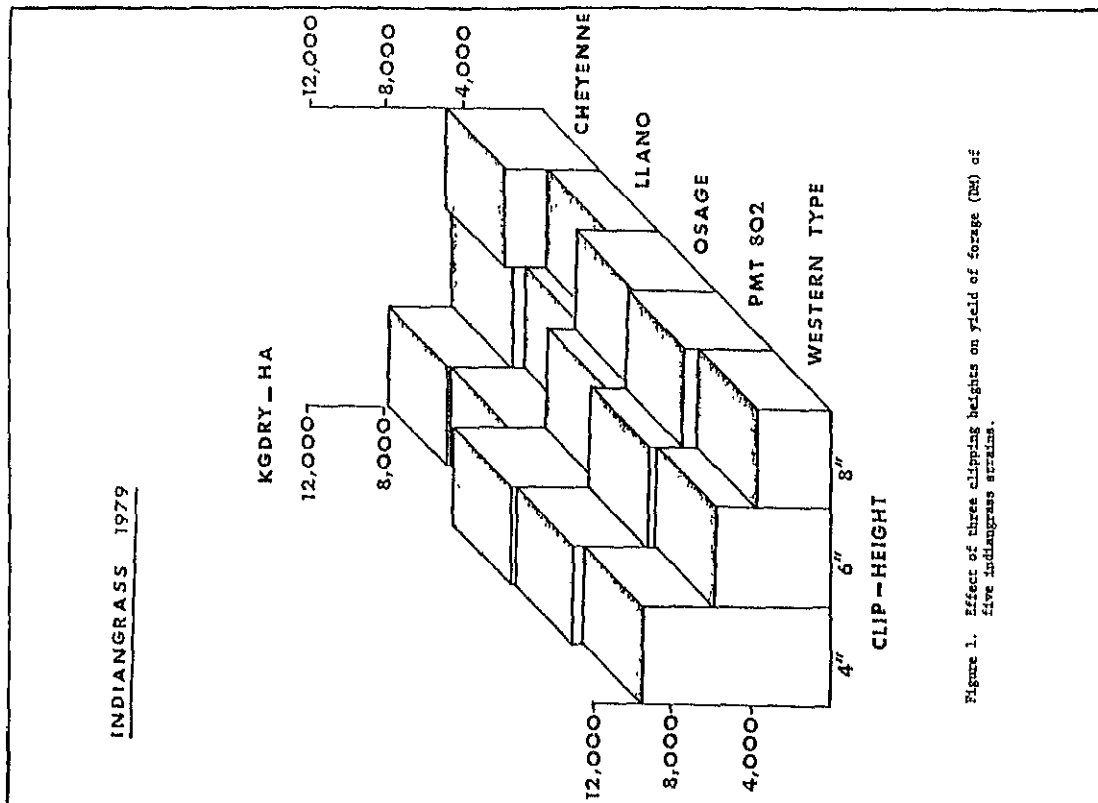


Figure 1. Effect of three clipping heights on yield of forage (kg) of five Indiangrass strains.

Forage production of 'Lowata' Indiangrass, however, far surpassed 'Cheyenne' at Bergman, Arkansas, as shown in Table 10. In this study, 'Lowata' Indiangrass produced 33 percent more forage than the variety 'Cheyenne'.

Table 10

Forage Studies - Warm-Season Grasses - Bergman, Arkansas*

VARIETY	TONS/ACRE DRY MATTER			
	77	78	79	AVG.
'Lowata' (PMT-102) Indiangrass	13.7	9.9	13.0	12.2
PMT-335 Indiangrass	12.3	11.3	11.7	11.5
MT-5734-73 yellow Indiangrass	10.7	10.6	11.6	11.0
'Cheyenne' yellow Indiangrass	10.4	7.1	10.6	9.4

* Data furnished by Aldo Hellman, District Conservationist, Harrison, Arkansas. These plots were fertilized with the equivalent of 30 lbs. N, 60 lbs. P₂O₅, and 30 lbs. K₂O per year early in the spring.

El Reno, Oklahoma: In a replicated Indiangrass study at El Reno, Oklahoma, conducted by Dr. Robert H. Ahlberg, Research Agronomist, SEA-44, which included 'Lowata' and several other commercial Indiangrass varieties including 'Cheyenne', 'Osage', 'Llano', and a western type from Oklahoma; forage yields, crude protein, digestible protein, and total digestible nutrients were measured. Since there was a very poor stand of 'Lowata' in 1978, only 1979 data are presented in this document.

To attain quality information, replicated clippings were made at 4-, 6-, and 8-inch clipping heights at the "hay stage" (approximately June 20, 1979, at El Reno). Due to tillering and excellent seedling vigor, 'Lowata' was able to establish a stand by 1979 comparable to the other varieties in the test. There was no significant difference in forage yield, crude protein, or digestible protein, probably due to experimental error (CV=32%). Errors in sampling techniques were presumed to account for this high CV. Figures 1, 2, and 3 represent the 1979 forage production, percent crude protein, and percent digestible protein, respectively (Ahlberg, in unpublished data). Additional information will be taken this year.

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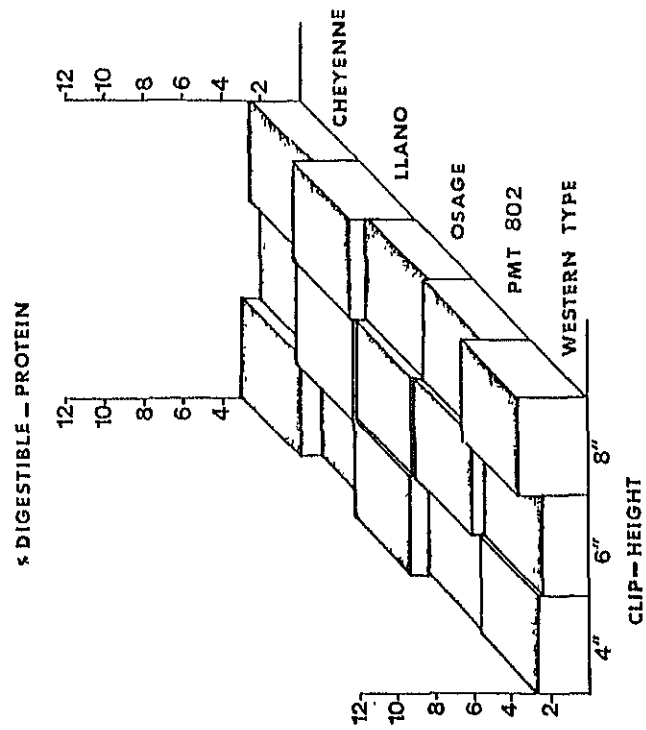
INDIANGRASS 1979

Figure 3. The influence of height of clip on percent digestible protein in forage (DM) harvested from five Indiangrass strains.

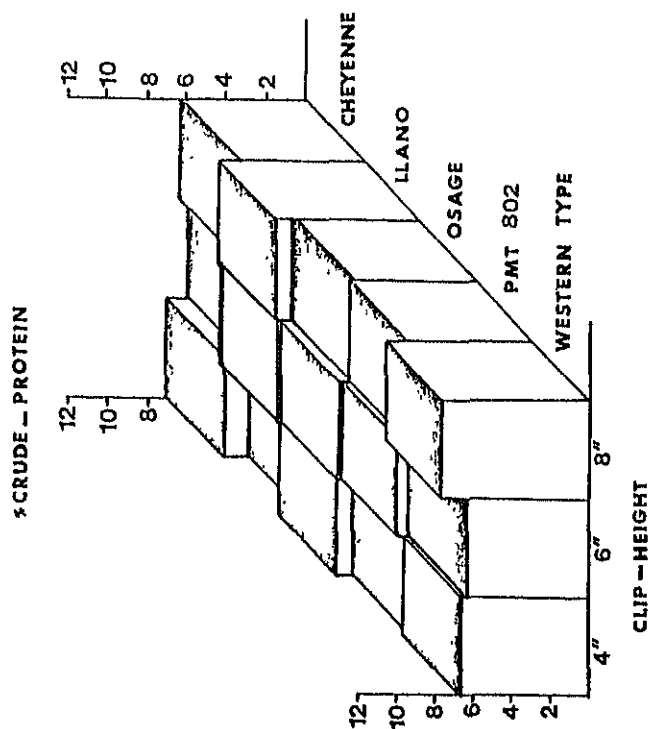
INDIANGRASS 1979

Figure 2. The influence of three heights of clip on percent crude protein in forage (DM) harvested from five Indiangrass strains.

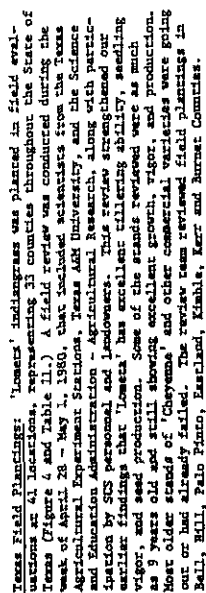


Table 11

PHT-802 INDIANCRASS FIELD PLANTING SUMMARY
1970-1979

FIELD OFFICE, COUNTY	COOPERATOR	PLANTED	PURPOSE	SOIL	STANDARD	EVALUATIONS
Henriette, Clay	B. England	5/75	A	Vashit	PHT-335 1 native	16 Ac - fair S, grazed to 8" in 78; 802 = side in 74; 803 fair S, avg V, good P in 78; 335 good S, excel V in 78 but 802 more P. 802 yield 4100#/Ac in 78, 335 yield 3500#/Ac in 78; avg SV, good P 6000# in 79; 335 excel SV-79, matured later than 802
Graham, Young	R. Zentlerling	3/76	A mix	Monti Truen fal	--	2 Ac - Mt S in 74 & 75; fal S, good V & P-78; 802 is competing with Control & ER this planting and holding its own, good S, excel V in 79
Childress, Childress	Humphreys	4/71	Adapt	Ahlens cl	'Tajae', 'Liano', 'Chayenne'	50% more forage than 'Liano' or 'Tajae'; remains greener later in fall than side; more V than side-72; 73-excel P; site abandoned-74; excel V & P-75, superior to side-75 for SV; 802 produces 3 times the forage of side-76
Childress, Childress	Turkey	5/71	Adapt	Woodward l	'Tajae', 'Liano', 'Chayenne'	More V & P than side-72; site abandoned-73
Breckinridge, Stephens	J. Corbett	3/76	Adapt mix	Truce & Runy fal	Commercial	S & G poor-78; fair SV-77; comm'l better S & P-76 and better P-77, but 802 = for G & P-77; S declined to poor on 802 this year but was not due to over-grazing; poor SV-79, comm'l avg SV-79
Eastland, Eastland	D. Woods	3/75	Pas-R	Cheney in	PHT-335 & commercial	802 & 335 - in 75, 76 & 77; excel S, fair V & P-73 & 75, best acc'n'g comm'l poor SV-74, 75, & 77; 802 more SV in 76 than side.
Hinsdale Wells, Jolo Pinto	J. Baker	4/71 or 4/75	R	Leary c	PHT-335 & commercial	Good S, fair V-75; excel SV-77; 335 fair S and poor V-75; 802 and 335 very poor S-74; 802 and 335 poor S & V, fair P-78, comm'l died out by 76; 802 better V & P-77; excel SV on 802 & 335 in 78, yield of 802 was 10000#/Ac in 78; 10000 P, excel acceptance by livestock-78; 335 excel S, good VP-79, 5000 P, poor spread
PURPOSE Adapt - Adaptation Obs - Observation Pas - Pasture						EVALUATION G - Growth P - Production S - Stand V - Vigor

PHT-802 Field Planting Summary (Continued)

FIELD OFFICE, COUNTY	COOPERATOR	PLANTED	PURPOSE	SOIL	STANDARD	EVALUATIONS
Stephenville, Erath	Thurber Ranch	4/72	Pas S	Oufou fal	'Liano'	Fair S, good V-76; good SV-77; 'Liano' = to 802 in 74; fair S & V-75 and = to 'Liano's' cattle and goats damaged S in 72-73; no SV in 78 due to stands being destroyed by grazing
Odessa, Crane	U of T, Vennie Cook	5/75	R	Ricco-lms, Tennex	'Liano'	Fair S & P, good G-75; poor SV-77; 802 = in side-75; fair S & P, good V-76, = to 'Liano' except 'Liano' poorer V; fair SV-79, comm'l no plants
Selma, Collin	R. Montgomery	5/76	R	Windthorst fal	PHT-335	3 Ac - Poor S-74; poor S, fair V & P-77; 802 = in side-75; poor SV-77; fair S, good V & P-77; native poor S, fair-good V & P-73; 335 slightly better than 802 for S & V in 78; fair S, good V, excel seed production in 79.
Brownwood, Brown	A. Whitely	4/72	Pas	Solar cl	Native Indiangrass	3 Ac - fair SV-74 & 75; good SV-76; good SV-77; native fair S & V, good P-72, 74 & 75; native late SV-77; 78; better SV than native, useful for deep soils on range & bottomland sites.
Temple, Bell	R. Burleson	73, 74, 75	R	Banyon c	PHT-335	Good S, fair P & V-74; excel S, good V & P-75 and better than 335; good SV-77, 3000#/Ac P-77; 335 2500#/Ac P-74 with good SV; 802 fair SV-75 and = to 335; 802 & 335 = in 73 with excel S, fair V & P; 335 in 10 days earlier-73 for seed production; good S, avg V in 78, P in 78 shows 802 = to native Indiangrass and much better than 335; good SV 3850#-79, 335 avg SV 3450# P-79, No S-78 & 77.
Temple, Bell	G. McKee	4/76	WLF	Denton etc	--	335 = to 802 in 72 & 73; excel SV-75, 76 & 77; 802 = to side-76 & 77.
Temple, Bell	Gen-Tex Lab	3/71	R	Bosque cl, Yuma cl	PHT-335	
Junction, Kinzie	J. Wright	4/73	R	Tarrant et c	PHT-335 & 'Chayenne'	Good S & V, fair V-74; good SV-75; 'Chayenne' poorer performance than 802 this year; grazed by cattle and sheep; 'Chayenne' good SV-74; 802 greater P than 'Chayenne'-74; 335 excel SV-74 & 75
Johnson City, Blanco	K. O'Hara	3/72	R	Heathly lfe	'Chayenne'	Better V & P than 'Chayenne'-74; good S-75; S poor-fair in 72; good SV-73.

542.30

PMT-802 Field Planting Summary (Cont.)

FIELD OFFICE, COUNTY	COOPERATOR	PLANTED	PURPOSE	SOIL	STANDARD	EVALUATIONS
Stephenville, Erath	Tutition State Farm	4/74	Adapt	Duffan s1, Wadsworth s1, Dorville s1	--	Poor S-74 due to drought and weeds; also plowed up in 75
Paris, Lamar	Todd Tractor Co	4/70	Adapt	Nehatche 1	'Chayenne'	Good S & V, P 2100/AC-70; 'Chayenne' poor S and fair V, P 1009/AC-70; no S due to weeds-71 & 74; 'Chayenne' fair S & V, P 1750/AC-73; 807 good S & V, P 7500/AC-73
Plainsview, Hale	Wick & Lower Running Water Draw	3/77	Stab mix	Biggs & Olson 1	--	No S-77, drought; no S-78
Norda, Medina	D. Wilson	4/77	Pat. h	Duval 1fs	--	No S-77, drought; no S of commercial either
Talferrias, Brooks	Glick Talne	4/77	R	Barite 1a	--	No S-77, drought.
Hillboro, Hill	D. Taylor	4/77	Pat	Altoga ci	'Alamo' switchgrass	3 Ac - fair S, weedy-77; avg SVF-78, 'Alamo' poor S, fair V & P-78; good SV, avg V, 20008 superior in planting-79; old poor S, fair V-78 & 79
Clatsville, Red River	T. Welch	4/78	Pat	Houston c	'Alamo'	3 Ac - Very poor S-78, drought, V fair; plot destroyed in 1979. 'Alamo' had good S, avg V in 78.
Columbus, Colorado	Attwater Prairie Chicken Refuge	8/77	Adapt	Crowley-Greene rpln	--	1 Ac - No evaluation-77 due to lack of rainfall; no S-78 due to drought
Hazon, Mason	R. Honeydon	3/78	R	Liglon st1a1	--	74 Ac - Poor S and avg V-78, drought was a problem in 78; poor SV-79
Circendon, Dickey	J. Moreman	4/79	R	Killee fal	--	3 Ac - Fair S, avg V-79.
Wharton, Wharton	Wharton County Junior College	3/79	Pat	Lola Charles c	'Selection 75' blingrass	2.5 Ac - Fair SV-79, heavy grass competition
Rockyledge, Edwards	R. Johnson	4/79	R	Tarrant etc	--	Very dry, not enough to evaluate in 1979.
Uvalde, Uvalde	J. Williamson	2/79	R	Snippe c	--	Poor SV-79, very dry, seeded in mixture of 12 Ac blingrass/802 and 12 Ac old world bluetam/802

PMT-802 Field Planting Summary (Continued)

FIELD OFFICE, COUNTY	COOPERATOR	PLANTED	PURPOSE	SOIL	STANDARD	EVALUATIONS
Kerrville, Kerr	T O Ranch	1/76	X	Denton etc	PMT-335 & commercial	Good S-76; good S, fair V & P-77; drought, 802 = 335 and commercial in 77; 335 & 802 = in 78, commercial poorer in 78, avg SV and good P-78 on 802; good SV, excel P 4000/79; old good SV, avg V, 3600/79.
San Antonio, Bexar	Camp Bullis	3/75	R	Louisville etc	'Tejano' & PMT-335	Excel S, good V & P-74 & 75; R of 'Tejano' not as good but otherwise = to 802, 335 not as good as 802; 802 excel-good SVF-76; 335 excel S but only good V and fair P-76.
San Antonio, Bexar	Graywood Farm	3/73	R	Louisville etc	--	Good SVF-74; good SVF-75; moderate to severe grazing by horses & cattle-74; good S, excel V & P in 74; fair SVF-77 due to overgrazing
Beaumont, Jefferson and Orange	Texas A&M	76	Adapt	--	--	None S-76; plots accidentally plowed up-77.
Cleburne, Johnson	W. Stewart	5/76	R	Houston R	PMT-335 & commercial	Dood S-76; good S & V, fair P-77; 802 = to 335 but commercial poorer; drought, weeds & overgrazing destroyed all plants of 802 & side in 78.
Flowerville, Wilson	J. Wright	3/74	R	--	PMT-335 & 'Chayenne'	Poor S, fair V & P-74; good SVF-75; 802 = to side in dry weather; poor SVF-78 and = to side; severe weeds-74; good SVF-76; cattle prefer 802 to switchgrass-76; weeds took all plots-77.
San Angelo, Tom Green	Texas A&M	--	Adapt	--	--	Fair-good S-77.
Angleton, Brazoria	Texas A&M	5/76	Adapt	Lola Charles c	'Selection 75' blingrass	Poor S-76; fair S-77; good SVF-78, 802 better than blingrass; not evaluated in 79.
Beaumont, Jefferson	Texas A&M	4/76	Adapt	Beaumont c	'Selection 75' blingrass	Severe weeds, no S-76; also plowed up 76-77 by accident; good SVF-78, 802 = old in 78; none rust-79, old fair S, avg V-79.
Burnet, Burnet	C. Price	3/71	X	--	'Chayenne'	Excel SVF-73; 802 excel SVF and 'Chayenne' good SVF-73; excel SVF-74; 'Chayenne' good SVF-74; 'Chayenne' S-4 weeks earlier in seed prod; 802 more rhizomes than old; 802 more productive & foliage remains green later in fall than old; 802 superior to old; 1977 prod 2100/AC on 802 & old; 1974 production of 802 was 1950/AC; 75-lar 3 yrs 802 better forage prod than 'Chayenne', S-4 weeks later in seed prod, but 'Chayenne' has better seed prod, 802 has better rhizome prod than 'Chayenne'.

1. AREA OF ADAPTATION

Field plantings and adaptation trials in Texas have shown 'Lometa' indiangrass to be adapted to all soils in areas receiving 22-44 inches of rainfall. Areas west of this precipitation zone should either be irrigated or planted in overflow bottomland sites. There is no doubt that 'Lometa' adaptation extends north and east, since excellent results have been received in Oklahoma and northwestern Arkansas; but exact range of adaptation outside of Texas has not been established.

2. PROCEDURE

The classes Breeder, Foundation, Registered, and Certified seed are to be used. Established seed certification standards of the Texas Department of Agriculture will be used; see Texas Seed Certification Standards (1979 revision), pages 27-28. The Soil Conservation Service will maintain the Breeder seed. Foundation seed will be produced by the Soil Conservation Service at the Knox City Plant Materials Center under the supervision of the Foundation Seed Service and the Texas Department of Agriculture until other arrangements are mutually agreed upon by the collaborating agencies.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
TECHNOLOGY DEVELOPMENT AND APPLICATION, ECOLOGICAL SCIENCE
WASHINGTON, D.C.

and the

UNITED STATES DEPARTMENT OF AGRICULTURE
SCIENCE AND EDUCATION ADMINISTRATION
AGRICULTURAL RESEARCH
WASHINGTON, D.C.

and the

TEXAS AGRICULTURAL EXPERIMENT STATION,
TEXAS A&M UNIVERSITY,
COLLEGE STATION, TEXAS

NOTICE OF RELEASE OF 'LOMETA' INDIANGRASS

The United States Department of Agriculture, Soil Conservation Service, the United States Department of Agriculture, Science and Education Administration, and the Texas Agricultural Experiment Station announce the naming and release of 'Lometa' indiangrass (*Sorghastrum nutans* (L.) Nash). It was developed by the Soil Conservation Service, USDA, and released in cooperation with the Science and Education Administration, USDA, and the Texas Agricultural Experiment Station, Texas A&M University, College Station, Texas. (This indiangrass has been assigned the permanent number PI-43362.)

'Lometa' indiangrass was collected from a native stand on the Kibby Ranch east of Lometa, Texas, by Soil Conservation Service personnel stationed at Llanenas, Texas. It was evaluated, selected, and increased at the Knox City Plant Materials Center and tested in over 40 plantings in Texas as PI-43362.

'Lometa' has been extensively evaluated for forage yields in both replicated and nonreplicated plantings. Advantages over presently available cultivars are (1) improved adaptation and (2) superior forage production. Present indiangrass cultivars are adapted only to the northern portion of Texas and stands fail to establish or are short-lived when planted further south in the state.

Present indiangrass cultivars usually bloom and set seed in midsummer at the Knox City Plant Materials Center, while 'Lometa' usually blooms in late summer or early fall. 'Lometa' has produced seed in both irrigated and nonirrigated areas. Evaluations in southern Oklahoma and northwestern Arkansas have also shown this grass to be quite competitive with commercial cultivars available in those areas. The full range of adaptability outside of the State of Texas is inconclusive, but it appears to be best adapted (for range mixes) in Texas on areas receiving 22 inches or greater natural rainfall. Soils west of this precipitation zone should either be irrigated or planted in overflow-bottomland sites.

\$542.30 cont.

\$542.31 Example of a plant release notice

542.31

Example of Seed Certification Standards
For Woody Plant and Forb Species 1/

I. The Purpose of Seed and Plant Certification

The purpose of seed and plant certification is to maintain and make available to the public high quality seed and cuttings of tree and shrub varieties and species so produced, handled, and distributed as to insure proper identity and genetic purity.

II. Eligibility Requirements for Certification of Woody Plant Varieties and Species

A. Only those varieties and species that are accepted by the Colorado State University Experiment Station and/or the State Seed Certification Service will be eligible for certification. Application forms for acceptance of privately developed varieties are available from the Colorado State Seed Certification Service.

B. For the Source-identified class the applicant shall submit to the certifying agency prior to the start of collections a written plan containing the following information:

1. Locations where collections are planned;
2. Planned dates for collections;
3. Estimated amounts for collections by species and locations;
4. Methods used for distinctive marking or collector's labels for field identification;
5. Name, address and telephone number of applicant's representatives for each area of collection; and
6. Any special instructions for reaching collection area.

III. Classes of Certification

A. Five classes of certification shall be recognized. Foundation, Registered, Certified, Selected, and Source-identified.

1. Foundation (white tag). Foundation seed or plant material shall be handled so as to most nearly maintain specific genetic identity and purity, and may be produced by an Agricultural Experiment Station or originator. Foundation stock shall be the source of Registered and/or Certified stock.
2. Registered (purple tag). Registered seed or plant materials shall be the progeny of Foundation seed or plant material. Registered stock is the parent stock for the production of Certified stock.

1/ Excerpted from Colorado Seed Certification Standards, 1983. Colorado Seed Certification Service, Department of Agronomy, Colorado State University, Fort Collins, Colorado.

\$542.32 Example of seed certification standards for woody plant and forb species

Notice of Release of 'Lometa' Indiangrass (Continued)

Four classes of seed (Breeder, Foundation, Registered, and Certified, of 'Lometa' Indiangrass) will be maintained and made available to the public by the Soil Conservation Service, Kootenai County Plant Materials Center, Coeur d'Alene, Idaho. Foundation seed will be produced at this location under the supervision of the Foundation Seed Service, Texas Agricultural Experiment Station, College Station, Texas, and the Texas Department of Agriculture.

DEC 5, 1981
Date

[Signature]
State Conservationist
Soil Conservation Service, Texas

3/12/81
Date

[Signature]
Deputy Chief
Technology Development and Application
Soil Conservation Service, Washington, D.C.

4/3/81
Date

[Signature]
M. E. Carter
Administrator, Agricultural Research
Science and Education Administration
Washington, D.C.

MAR 04 1981
Date

[Signature]
Director
Texas Agricultural Experiment Station
College Station, Texas

\$542.31 cont.

VII. Sampling of Seed and Plant Inspection

A. A representative sample of each lot of seed as it is offered for sale shall be taken and submitted to the State Certification Office to be tested for purity and germination.

B. Plant materials must be inspected by the State Certification Service prior to offering for sale.

VIII. Conditioning and Warehouse Inspection

Conditioning of all classes of certified seed must be done by a Colorado Approved Certified Seed Conditioner. Refer to the Certified Directory or call the CSOA office for a list of approved conditioners. Inspection of seed or plant materials may be made at any time and any lot not properly protected from loss of identity may be rejected.

IX. Field Standards

A. General

1. Minimum isolation distances will be construed to refer to only genetically related species. A minimum isolation radial distance will be required, except for elm, which will be 1320 feet.

2. Seed plants must be true to type and must possess desirable qualities of growth, form and vigor. Off-type plants must be removed.

3. Fruit collecting and seed cleaning shall be under the supervision of the Seed Certification Service.

B. Isolation

1. Isolation for Certified or Selected classes shall be adequately maintained and free of off-type plants and other species which might cross-pollinate the plants being considered for certification. The distance and specifications shall be established for each species as they become available.

2. There shall be no isolation requirements for the Source-Identified class of seed.

3. Minimum distance from a different variety or a non-certified population of the same kind shall be:

Class	Minimum of Isolation-Feet*	
	Fields of Less Than 2 Acres	Fields of More Than 2 Acres
Foundation & Registered	600	300
Certified and Select	300	100

*Except Rocky Mountain Penstemon--minimum isolation for all classes = 990 ft.

3. Certified (blue tag). Certified seed or plant materials shall be of known genetic identity obtained from woody species of proven superiority, as defined by the State Certification Service.

4. Selected (green tag). Selected seed or plant material shall be from rigidly selected woody species or stands that have promise of genetic superiority but that may or may not have been progeny tested.

5. Source-Identified (yellow tag). Source-identified seed of plant material may be seed from (a) natural stands with geographic source and elevation known or (b) from plantations or shelterbelts of known geographic location.

IV. Handling the Crop Prior to Inspection.

Regarding off-type plants, objectional crop plants and weeds is required prior to field inspection and will be the responsibility of the grower and/or collectors.

V. Field Inspections

A. Field inspections for Registered, Certified and Selected classes shall be made by representatives of CSOA prior to collection or harvest of seed. Additionally, field standards prescribed below for the Source-identified class are required.

B. Inspections of stands, designated sites, collection areas, etc. for Source-identified class shall be sufficient to determine the geographic source, location, and elevation in increments of 500 feet for each species being collected.

C. Conditioning and warehouse inspections (See Section VIII) shall be made to assure proper identity and compliance with field standards.

D. All conditioning records involved in receiving, conditioning, storage, labeling, and shipping shall be available for inspection by the certifying agency.

E. The certifying agency reserves the right to reject from certification any lot of seed that has not been properly protected from contamination or is not properly identified.

VI. Establishing the Source

A. Evidence, such as the certifying tag, sales record, etc., must be submitted to the certifying agency to establish source of seed or plant materials.

B. The exact source of the parent plants by legal description and the stand history must be known and will be shown (geographic, elevation, etc.) on the certification tag or label.

542.32

B. General

Properly drawn representative seed samples shall meet the following general standards for all species:

Maximum Permitted Each Class Factor	Foundation	Certified
Total other crops	0.20 percent	2.00 percent
Other varieties	0.10 percent	2.00 percent
Other kinds	0.10 percent	3.25 percent
Noxious weeds	None	None

VI. Disease and Insect Standards

Seed or plant materials will be inspected and shown to be free from disease and insects.

Specific:

Factor	Foundation	Registered	Certified and Selected
Other varieties & types	1/1000	1/500	1/100

C. Land Requirements

A field to be eligible for the production of certified classes of seed must not have grown or have been present to the same species or natural wild plants during the previous four (4) years for Foundation, two (2) years for Registered or one (1) year for Certified, except for seed of the same variety of cereals or higher classification. Land to be used for the production of certified classes of seed must be from volunteer plants.

X. Seed Standards

A. Specific Seed Standards

Species	Type of Reproduction	Germination		Purity (Minimum)		Insect		Moist Seed	
		FAR	C	FAR	C	FAR	C	FAR	C
Desertwillow	C	60	50	80	60	20	40	.30	50
<i>Chilopsis linearis</i>									
Fourwing saltbush	C	40**	35*	80	70	20	30	50	1.50
<i>Atriplex canescens</i>									
Mountain Mahogany	C	60	50	80	70	20	30	.30	.50
<i>Cercocarpus montanus</i>									
New Mexican Forsythia	C	30	30	90	80	10	20	.30	50
<i>Forsythia fremontiana</i>									
Russian Olive	C	75	65	90	80	10	20	30	50
<i>Elaeagnus angustifolia</i>									
Stinkbush Sumac	C	55	50	80	70	20	30	.30	.50
<i>Rhus trilobata</i>									
Rocky Mountain Penstemon**	C	60	60	85	80	15	20	10/.30	50
<i>Penstemon strictus</i>									

* The tetrazolium test may be substituted for the normal germination test. A minimum tetrazolium test of 50 percent is acceptable.

** A field must not have been planted to the same species during the previous four (4) years for Foundation, three (3) years for Registered, or two (2) years for Certified, except for seed of the same variety of equal or higher classification.

542-90

(190-V-NPMM, August 1984)

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January-February, 1973, p. 130

REGISTRATION OF LATHCO FLATPEA¹

(Reg. No. 15)

Jesse L. McWilliams²

¹Lathco[®] flatpea, *Lathyrus sibiricus* L., was developed by the USDA, Soil Conservation Service, at Big Flats, N.Y., as a conservation cover plant. It is an open-pollinated line (experimental designation NY-1157) developed from a 1957 field collection made in Lewis County, Wash. No large selection of breeding was involved in the development of this mutant. It is a direct increase of the field collection. The initial seed increase was at the Big Flats Plant Materials Center. It was tested against five other strains of flatpea and was superior to all of these in plant vigor, vegetative production, seed production, and vigor of seedlings. Lathco was released April 17, 1972, in cooperation with the Cornell Agricultural Experiment Station, Ithaca, N.Y. and the Pennsylvania Agricultural Experiment Station, University Park, Penn.

Lathco is a very rhizomatous, perennial legume with tendril-bearing stems. It normally forms a mat 1/2 to 1 m high but will clump to 2 m or more if support is available. Lathco is hardy, drought tolerant, and adapted to a wide variety of soils including heavy clay, silty soils, gravelly soils, and shales. It is best suited to well-drained soils but will grow on soils that are moderately well-drained. It is not adapted, however, to poorly drained soils.

Lathco has been tested as a conservation cover plant on gravel pits from West Virginia to Maine. It is suited for use in establishing protective cover on logging roads, river areas, gravel pits, utility rights of way, roadbanks, mine spoils and borrow pits. Lathco appears to have potential as a forage plant. It has not been tested for this purpose, however, and presently it is not recommended as a forage. Area of probable adaptation of Lathco will be northeastern United States from Kentucky to Maine and the Pacific Northwest.

Breeder seed is maintained by the Soil Conservation Service. Seed propagation is limited to two generations from breeder seed - foundation and certified.

²Registered by the Crop Science Society of America. Contribution from the Soil Conservation Service, USDA, Agricultural Experiment Station, Cornell University, Ithaca, N.Y. 14850 and Pennsylvania State University, University Park, Pa. 16802. Received Oct. 2, 1972.
³Plant Materials Specialist, Soil Conservation Service, USDA, Reno, Nev. 89505 (Formerly at the Plant Materials Center, Big Flats, N.Y.).

\$542.34 Example of a registration article

APPLICATION FOR REGISTRATION OF CULTIVARS, ELITE GERMPLOID AND PARENTAL LINES OF GRASSES^{1/}

Crop Science Society of America, American Society of Agronomy,
and Agricultural Research Service, USDA, cooperating

Categories: ☐ bermudagrasses (), ☐ bluegrasses (), ☐ bluestem
grasses (), ☐ bromegrasses (), ☐ fescues (), ☐ gramagrasses (),
orchardgrasses (), ☐ wheatgrasses (), ☐ paspalums (), ☐ timothy ()
and other grasses ().

Applicant _____ Date _____

Address _____

Cultivar name or germplasm designation _____

Has this cultivar or germplasm been formally released? ☐ yes, ☒ no

Institutions or firms developing and distributing _____

Name(s) of breeder(s) _____

Characteristics that make the entry distinct, advantages over other germplasm or
other reasons why it merits registration _____

Origin and breeding procedures used: _____

Area of probable adaptation and primary purpose (hay, grazing, type of turf, etc.) _____

^{1/} Submit 4 complete copies of this application form to Reed E. Barker, USDA-ARS,
Northern Great Plains Research Center, P. O. Box 458, Mandan, ND 58554.
Enclose 4 copies of your registration manuscript for publication in CROP SCIENCE
(see recent issue for style).

\$542.33 Application for Registration of
Cultivars, Elite Germplasm, and
Parental Lines of Grasses

542.35

AMERICAN NURSERYMAN

Emerald Sea juniper displays diverse landscape qualities

By *Clayton R. Belcher*

EMERALD SEA, the juniper, *Juniperus conferta* Emerald Sea, is a shrub, one to two feet tall, forming in pale greenish-blue needles are evergreen, softer than red cedar and more resistant to salt spray than the blue-green variety during the winter. The needles are half to one inch long, pointed, and have a silvery underside. The plant produces a uniform and dense foliage, and is an excellent choice for coastal landscaping.

Conservation Plantings
The collection which led to the release of Emerald Sea was made by the U.S. Department of Agriculture's Plant Introduction Station, near Honolulu, Hawaii, in 1967. Subsequently, propagating material was provided to the U.S. Department of Agriculture's Plant Materials Center, Beltsville, Md. Since 1968, this collection has been evaluated in numerous conservation trials along the mid-Atlantic coast. It is considered one of the most successful producers by the Soil Conservation Service and Agricultural Research Service in 1972.

Emerald Sea has proved to be winter hardy in plant growth zone 6 (along the coast from Virginia to North Carolina). Additional plantings are being made to determine more precisely its exact range of adaptation.

Drought Tolerance
Emerald Sea grows in medium fertility soils and has good tolerance to drought. It requires well-drained soils. It has excellent adaptation to very sandy areas and grows best in Mr. Belcher is manager of Cape May Plant Materials Center, U.S. Department of Agriculture, Plant Introduction Station, Cape May Court House, NJ.

Juniperus conferta Emerald Sea

NOVEMBER 15, 1977
1/10 1/10 FV poor main soil in elevated locations. Emerald Sea is a well adapted plant. Because of its silvery underside, it is well adapted to sea shore plantings.

The soft texture and pale green color make Emerald Sea useful for landscaping situations. It can be used as a hedge or screen, or as a border in front of taller plant groups. Emerald Sea creates a pleasing effect when allowed to drift over walls and fences.

Full Ground Cover
Even though the juniper is well adapted to coastal conditions, there are some plantings where it will not grow. When it is established, only container-grown plants should be used. If the plant is to be used in a coastal area, it will need full sun and a well-drained soil. On sand dunes, some protection from wind during the first and second years is recommended. Adding organic material to the planting hole is also recommended when Emerald Sea is used on sand dunes.

Shore juniper is propagated by cuttings taken in the winter or early spring. Cuttings should be about 12 inches long and have a non-inducing substance. Containers should be one or two years old and are desirable for transplanting. Survival is usually better with one year-old stock.

Forest Plants
The SCS Cape May Plant Materials Center Cape May Court House, NJ, is now responsible for maintaining the nurseries for maintenance of unrooted cuttings. It will be made available to nurseries through the U.S. Soil and Water Conservation Districts. For more information on planting stock and for obtaining additional information, contact Mr. Belcher at the local offices of the U.S. Soil Conservation Service. The nearest office is in Cape May Court House, NJ. For information in the telephone directory.

542-92

(190-V-NPMM, August 1984)

\$542.35 Example of a popular-style writeup about release of an improved variety of a woody plant

\$542.36 Nursery trade publications for submission of popular-type articles about release of new woody plant varieties

Nursery Trade Publications for Submission of Popular-type Articles about Release of New Woody Plant Varieties

AMERICAN NURSERYMAN 243 South Dearborn Street Chicago, Illinois 60604	WESTERN LANDSCAPING NEWS 1623 S. La Cienega Blvd. Los Angeles, California 90035
SOUTHERN FLORIST & NURSERYMAN P. O. Box 1968 Fort Worth, Texas 76101	LAWN GARDEN OUTDOOR LIVING 1014 Wyandotte Street Kansas City, Missouri 64105
WINTER LANDSCAPING 7329 N. Wentzville St. Louis, Illinois 60076	NEEDS, TREES AND TURF 9800 Detroit Avenue Cleveland, Ohio 44102
LANDSCAPE INDUSTRY 910 Elm Grove Road Elm Grove, Wisconsin 53122	GRASSES MAINTENANCE 1014 Wyandotte Street Kansas City, Missouri 64105
NURSERY BUSINESS 910 Elm Grove Elm Grove, Wisconsin 53122	TREES MAGAZINE 7621 Lewis Road Olmstead Falls, Ohio 44138
PACIFIC COAST NURSERYMAN c/o GARDEN SUPPLY DEALER 832 S. Baldwin Avenue Arcadia, California 91007	HOME & GARDEN SUPPLY MERCHANDISER P. O. Box 67 Minneapolis, Minnesota 55440
FLORIST & NURSERY EXCHANGE 434 S. Main Avenue Chicago, Illinois 60605	HOME GARDEN MAGAZINE Flower Grover Publishing, Inc. 235 E. 58th Street New York, New York 10017

Part 542 - Exhibits

§542.37 Outline guide to the functional appraisal of state plant materials activities

Outline Guide to Functional Appraisal, State Plant Materials Activities

<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
I STATE OFFICE		
(a) National Plant Materials Manual	(1) What is the distribution? (2) State policy or supplements to the NFPM? (i) Consistent with NFPM? (ii) Reviewed by other agencies?	
(b) State long-range plant materials program	(1) When was it prepared? (2) Is it correlated to HCP objectives and priorities? (3) Are problems addressed in the PHC's long-range plans serving the state? (4) Have actions been proposed for guidance of PHC activities to solve the problems identified?	
(c) State plant materials committee	(1) Who are the members? (2) Do the members actively participate in PM activities? (3) When did committee meet last? (4) Does the committee review long-range plans for field plantings?	

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<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
(d) Annual plant materials plan or supplements	(1) Review the current plan or supplement. (2) Was it prepared by the state plant materials committee? (3) Do the plan and/or supplements correspond with information on the long-range plans for field plantings? (4) Is the plan accurate?	
(e) Planting guides	(1) Review planting guides for each plant used in field plantings, as shown in annual plan or supplement. (2) Are the guides reviewed by members of the state plant materials committee and distributed to conservationists involved with establishing each field planting?	
(f) Field plantings	(1) Are long range plans available for each species in field plantings? (2) Are field plantings and long range plans consistent with needs and priorities established in the state long-range program? (3) Who prepares planting plans? Did the PM committee assist in preparation & review? (4) Are long-range plans and planting guides technically accurate?	

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Part 542 - Exhibits

542.37

<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
(f) cont	<p>(5) Are planting plans (SCS-FCS-1) accurate?</p> <p>(6) Do members of the state's plant science staff and the PHS</p> <p>(i) Assist in site selection for field plantings?</p> <p>(ii) Provide onsite assistance during seeding or planting?</p> <p>(iii) Assist with evaluations?</p> <p>(7) Does a field office staff member provide onsite assistance during seeding and planting?</p> <p>(8) Are forms SCS-FCS-10 and SCS-FCS-11 used in evaluating field plantings?</p> <p>(i) Is there a correlation between long-range plans for field plantings, PH shipped to the state, and field plantings evaluated?</p> <p>(ii) Who prepares the forms for distribution to field offices?</p> <p>(iii) Are entries to complete shown on forms when they go to field office?</p> <p>(iv) Has the district conservationist received training in completion of the forms?</p> <p>(v) Are evaluations scheduled?</p>	

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<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
(f) cont.	<p>(vi) Are SCS plants compared with standard plants where available?</p> <p>(vii) Are photographs adequate in number and quality, and are they well-identified?</p>	
(g) Seed increase	<p>(1) Is the commercial seed and plant production of released cultivars adequate?</p> <p>(2) Does the annual plan include requests for enlarging commercial plant and seed increase if supplies are inadequate?</p> <p>(3) If not, what actions are proposed to make needed material available?</p> <p>(4) Does the seed and plant increase meet the standards for foundation, registered, and certified production?</p>	
(h) Reports	<p>(1) Is form SCS-ECS-8 filled out to indicate production of all SCS-released materials?</p> <p>(2) Is an annual plant materials report prepared with the PMS manager?</p> <p>(i) How often is the report prepared?</p> <p>(ii) What is the distribution of the report?</p> <p>(iii) Are contributions from the PMS timely and significant?</p>	

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(190-V-NPMM, August 1984)

<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMPLEMENTS</u>
(h) cont	<ul style="list-style-type: none"> (iv) Is promising plant performance summarized? (v) Does the annual plant materials report meet NPMF requirements? (vi) Are completed advanced and field planting projects summarized in technical notes or in popular or technical publications? 	
(i) Application	<ul style="list-style-type: none"> (1) Do the PMS and the state plant materials committee prepare information about proven new materials and techniques for (i) inclusion in technical guides, and (ii) public distribution? Give examples. (2) Do the PMS and other members of the state plant science staff prepare and distribute technical notes, and job sheets to the field offices? Give examples. (3) Are all SCS released plants which are adapted to the State included in standards and specifications? Review. 	
(j) Training	<ul style="list-style-type: none"> (1) Do members of the state plant materials committee periodically review the work conducted at the PMC(s) serving the state? Do they recommend projects? (2) Is the PMC used as a training facility for field office personnel and field specialists? 	

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<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMPLEMENTS</u>
(j) cont	<ul style="list-style-type: none"> (3) Do the PMS and other state plant science members provide training for SCS field personnel and others concerned with plant materials? (4) Is the PMS scheduled to attend area conservationist and district conservationist meetings and workshops on a regular basis? 	
(k) Working relationships with cooperating agencies and other groups and organizations	<ul style="list-style-type: none"> (1) Are satisfactory working relationships maintained with other agencies and groups such as: <ul style="list-style-type: none"> (i) The state conservation committee? (ii) Association of conservation districts, nurserymen, seed producers? Give examples. (iii) State certification agency (through memorandums of understanding, personal contacts, etc.)? Give examples. (iv) Universities (through memorandums of understanding within the framework of the ESCOP agreement, cooperative studies, personal contacts, etc.)? Give examples. (v) Federal agencies? Give examples. (vi) Others, including other state agencies and seed and nursery dealers? Give examples. 	

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Part 542 - Exhibits

542.37

<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
(k) cont	(vii) Are research workers and others kept informed about SCS plant materials activities?	
	(viii) Are proven plant materials cooperatively released with state agricultural experiment stations and other cooperating state and federal agencies & organizations? Give examples?	
(l) Improvement in plant materials assistance	(1) How can plant materials work be improved to better meet the need for suitable plant materials for use in conservation programs?	

<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
II FIELD OFFICE		
(a) Training	(1) Has DC received FM training in past 3 years?	
	(2) Have you received brochures, conservation plant sheets, etc., periodically on FM? Where were they prepared?	
	(3) Have you received on-site training relative to field plant establishment or evaluation? By whom?	
	(4) Could you use more training in FM?	
(b) Field Plantings	(1) How many new ones in the last 3 years?	
	(2) What species?	
	(3) Did you prepare a planting plan, give cooperator a Planting Guide and provide on-site assistance?	
	(4) Last time field plantings were evaluated?	
	(5) Was SCS-FCS-010 or 011 used?	
	(6) Has PMS or other plant science staff member worked with you on evaluations?	
	(1) Are newly released plants incorporated in standards and specifications?	
	(2) Are adapted cultivars identified in standards and specifications?	

<u>ACTIVITY</u>	<u>WHAT TO EVALUATE</u>	<u>COMMENTS</u>
(c) cont	(3) Have you recommended newly released plants to cooperators in past 6 months? Give example: Pull plan and technicians notes	
(d) Plant Materials Needs	(1) Do you have a list of sources? (2) Do you feel there is a need in your area for: (i) new plants for specific problems? what problems? (ii) field plantings? (iii) demonstration trials? (3) How can plant materials work be improved to meet: (i) conservation problems? (ii) field planting problems?	
(e) Publicity and Information Programs	(1) Do you adequately publicize the results of field plantings and encourage use of improved plant materials for resource conservation by: (i) Preparing newspaper stories about outstanding plantings, new plant materials, or both? (ii) Encouraging tours of successful plantings?	

<u>ACTIVITY</u>	<u>WHAT TO INSPECT</u>	<u>COMMENTS</u>
(a) cont	(iii) Reporting on results of field plantings at SCD meetings? (iv) Encouraging publication of performance data for outstanding plantings in SCD annual reports?	

Part 542 - Exhibits

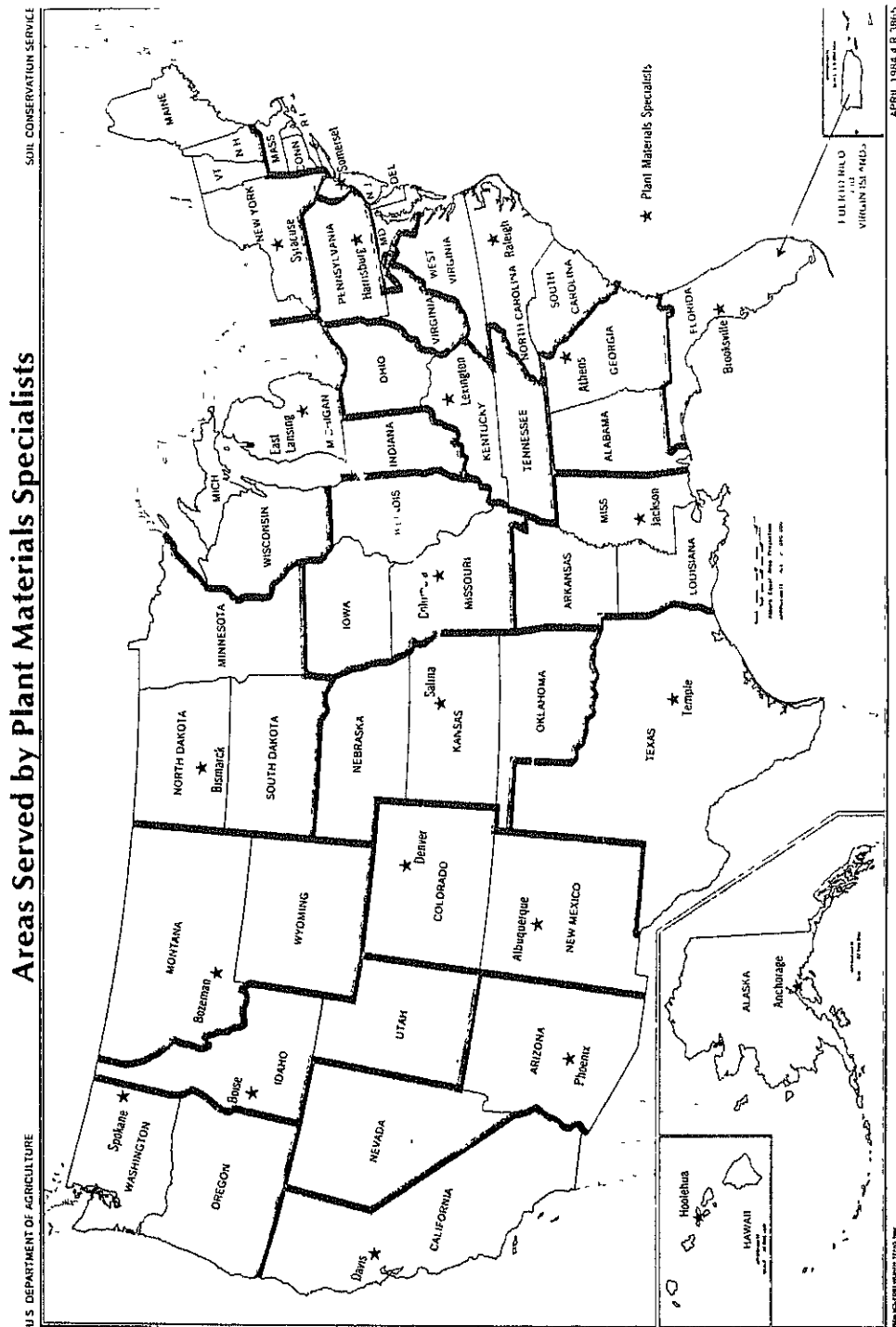
542.37

III APPRAISAL REPORT

The appraisal team is to discuss its appraisal report with the state conservationist or his designated representative upon completion of the appraisal.

Reports of functional appraisals of state operations are to be forwarded to the Chief, who sends the report, along with comments, recommendations or instructions for correcting deficiencies, to the state conservationist concerned.

542.38



\$542.38 Areas served by Plant Materials Specialists

542.39

(to be completed when planning form is prepared)

Does the cooperators understand the purpose of the planning or practice as well as the culture and management required for its success? _____

Does the site meet the requirements established in the planning guide? _____

a. Is it conveniently located? _____

b. Is it well identified in the planning guide in the project plan? _____

c. If it is to be grazed, is the field's separate fenced unit of adequate size? _____

Has the cooperators agreed to establish and manage the planning as established in the planning guide? _____

Are planned weed control measures adequate? _____

Will the field and equipment be checked before planting? _____

Will an SDS technician help with the planning? _____

Will follow-up assistance be provided? _____

a. To obtain adequate weed control? _____

b. To obtain evaluations as outlined in the planning guide or in the project plan? _____

Has the location map been completed on reverse side? _____

Comments - explanations if no answers: _____

(signature and date)

(date)

INSTRUCTIONS FOR USE: The district conservationist completes the form on the front and back of the original. He retains the last copy and forwards the other copies for approval. When approved, the planning materials specialist keeps the original and returns the other copies to the district conservationist. The district conservationist and the planning materials specialist are to file their copies with other records relating to the planning.

U. S. DEPARTMENT OF AGRICULTURE
NATIONAL COOPERATION SERVICE

NSC Form 1
2-78
Rev. 6-19-78

PLANTING PLAN FOR FIELD, SPECIAL, AND INCREASE PLANTINGS

Purpose of planting: _____

Planting Plan No. _____

Plants to be evaluated	Identifying culture or number	Seeding or planting rate	Total needed	Submitted by

Standards for comparison

State: _____ F O _____ SEC. _____ TWP _____ RNC _____

SDS: _____ MLRA _____ Date to be planted: _____

Site: _____ (series) _____ (number)

Cooperator: _____ Address: _____ Slope: _____ Exposure: _____

Hyg. (yes or no) _____ Precip. (inches) _____ Elev. (feet) _____

Site history for previous three years:

19 _____

19 _____

19 _____

Method of planning to be used: _____

Materials needed	Rate	Total	Materials needed	Rate	Total
Seeds			Seeds		
Fertilizer			Fertilizer		
Other			Other		

Cooperator: _____ Date: _____ Submitted by: _____ Date: _____

Approved: _____ (Chairman District Board) Date: _____

Approved: _____ (SDS or PMS) Date: _____

Location Map

REVIEW INSTRUCTIONS AND COMPLETE CHECKLIST ON BACK OF ORIGINAL

NP48-2.

\$542.39 SCS-ECS-009, Planting plan for Field, Special, and Increase Plantings

Part 542 - Exhibits

§542.40 Example of a long-range plan for field plantings

'HAGNAR' BASIN WILDRYE FIELD PLANTING-LONG RANGE PLAN

Species: *Elymus cinereus* (Scribn. and Merr.)

Accession: Hagnar, formerly P5797 For ADP, use 9001232

Purpose: To fully determine the area of adaption and performance of 'Hagnar' for the practices and MLRA's identified in this plan.

Practices: Critical Area Stabilization (342): in mixture with other adapted grasses, forbs, and/or shrubs.

Range Seeding (550): in mixture with other adapted grasses, forbs, and/or shrubs

Pasture and Hayland Planting (512): in mixture with legume.

Wildlife Upland Habitat Management (645): in mixture with other adapted plants for food and/or cover

Background: 'Hagnar' basin wildrye is a hardy, robust, long-lived native perennial bunchgrass. It is well adapted within the area of southern Idaho, northern Utah, Nevada, eastern Oregon, and Washington. It grows in areas with an average annual precipitation of 8 to more than 16 inches. In the lower precipitation regions it grows well in "run-in" areas, along gullies or water courses, or on sites with a water table near the surface. It is adapted under irrigation throughout the region. 'Hagnar' has a broad soil texture adaptation except for coarse-textured deep sands or shallow soils. It has good tolerance to salt and alkali and can be used on the same sites as tall wheatgrass.

'Hagnar' was released by the Aberdeen PMC in 1979. Field plantings over two decades have been limited primarily to Idaho, Oregon, and Washington. There is a high demand for basin wildrye for reclamation

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in the Intermountain Region. Preliminary data indicate 'Hagnar' may be well adapted throughout the range of the species. Field plantings are needed to demonstrate this.

Duration: 5 years

Standard for Comparison: Field office technical guide recommendations for practice being applied. 'Hagnar' currently is a standard for comparison with T-5356 basin wildrye in Montana, Wyoming, and Oregon. T-5356 was selected at Bridger.

Seed Production Responsibility: Aberdeen and Hecker PMCs. Seed will be available through 1986.

Allocation: See attached schedule. Adjustments will be made annually to bring requests in line with supply, and to indicate the PMC supplying the field office.

Requesting Seed: Send SCS-ECS-001 to Aberdeen or Hecker requesting shipment to the field office.

FIELD PLANT SCHEDULE - 'HAGNAR' WILD RYE

<u>Year</u>	<u>Field Office</u>	<u>MLRA</u>	<u>Practice</u>	<u>Allocation</u>
IDAHO				
1982-83	TBA	B12	512/645	45
	TBA	D25	550	200
1983-84	TBA	B10	512/645	45
	TBA	B12	512/645	100
UTAH				
1982-83	TBA	B47	512	100
1983-84	TBA	D28	550	100

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Part 542 - Exhibits

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<u>Year</u>	<u>Field Office</u>	<u>HLRA</u>	<u>Practice</u>	<u>Allocation</u>
OREGON				
1982-83	Burns	23	550	75
1983-84	Lakeview	23	550	75
1984-85	LaGrande	10	550	50
	Enterprise	9	550	50
	Ontario	23	550	50
	Prineville	10	550	50
	Baker	10	550	50
MONTANA				
1982-83	Helena	43	550	50
	Phillipsburg	44	550	50
	Malta	52	550	50
1983-84	Jordan	58	550	50
	Sheridan	43	550	50
	Kalispell	43	550	50
1984-85	Hardin	58	550	50
	Columbus	58	550	50
	Terry	54	550	50
	Scobey	53	550	50
WYOMING				
1982-83	Douglas	58	550	50
	Gillette	58	550	50
	Sheridan	46	550	50
1983-84	Graybull	32	550	50
	Lovell	32	550	50
1984-85	Pock Springs	34	550	50
	Pinndale	46	550	50
	Cokeville	43	550	50

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<u>Year</u>	<u>Field Office</u>	<u>HLRA</u>	<u>Practice</u>	<u>Allocation</u>
CALIFORNIA				
1982-83		21		50
1983-84		21		50
NEVADA				
1982-83	Lander Co.	24		10
	Humboldt Co.	25		10
1983-84	Elko	25		10
1984-85	Eureka	28		10
COLORADO				
1982-83	Horwood	48	550	100
1983-84	Craig	348	342	60
	Hecker	348	342	60
WASHINGTON				
1982-83	Goldendale	8	512	75
1983-84	Okanogan	8	512	50
	Spokane	44	365	50
1984-85	Colville	44	512	50
	Moss Lake	7	512	50
	Othello	7	365	50
	Wapato	8	365	50

	<u>SEED NEED SUMMARY</u>		
	<u>1982-83</u>	<u>1983-84</u>	<u>1984-85</u>
CA	50	50	0
NV	20	10	10
CO	100	120	0
MT	150	150	200
WY	150	100	150
UT	100	100	0
ID	145	145	0
WA	75	100	200
OR	<u>75</u>	<u>75</u>	<u>250</u>
	865	700	800

542.41

USDA-SOIL CONSERVATION SERVICE
CHESTER, PA

Planting Guide

SPECIES: 'AROSTOOK' CEREAL RYE, *Secale cereale* L. 9002815

Uses: Due to the late harvest of many crops, conventional cover crops can not be expected to make adequate growth to provide winter soil protection.

Arostook rye can be seeded in northern Maine as late as September 30th. While soil cover will be sparse from such a seeding date in a normal year, it will be significantly better than if no cover crop were used.

Arostook can be seeded as early as August 1 as a cover crop following any row crop. Due to its late fall and early spring growth, it is most useful when the length of the growing season limits the use of other species.

Description: Arostook rye is typical of the species with the exception of its late fall and early spring growth and prostrate fall leaf growth. Both of these and to its value for a cover crop. The leaf area index, when the plants are growing at 250 growing degree days with a base of 0° F., is significantly better than that of 'Salus'. At maturity Arostook is of medium height.

Adaptation: Arostook rye is adapted to the same general area and soils as other commercial rye. Arostook could be used as a winter cover crop in any stand as a late seeded cover crop if a minimum of 260-350 growing degree days remain after seeding. Table 1 shows the last approximate seeding date at which 260 and 350 growing degree days can be expected at various locations. Due to variations from year to year, every effort should be made to seed prior to these dates to assure good fall growth. Fall cover will be unsatisfactory if less than 260 growing degree days occur after seeding.

While Arostook was developed primarily for use in northern climates, tests are underway to determine its geographic adaptation to other areas where cereal rye is commonly used as a winter cover crop.

Establishment: The best method to plant Arostook following potatoes, corn, soybeans, and other row crops is to drill the seed. Another satisfactory method is broadcast the seed, followed by a shallow discing or harrowing and cultipacking.

Arostook rye can also be aerial-seeded in standing corn or other row crops.

Use a minimum of 2 bushels per acre (110-120 lbs/a). For very late plantings or aerial seedings, 3 bushels per acre is recommended. No seed treatment is recommended.

There is usually adequate residual fertilizer following a row crop to produce the cover crop.

Table 1 - Latest fall seeding dates, based on growing degree days for Arostook Rye

Location	260 GDD	350 GDD
Peoria, Illinois	Oct 11	Oct 04
Indianapolis, Indiana	Oct 11	Oct 04
Des Moines, Iowa	Oct 11	Oct 04
Lexington, Kentucky	Oct 18	Oct 11
Worcester, Massachusetts	Oct 11	Oct 04
Flint, Michigan	Sept 27	Sept 20
Minneapolis, Minnesota	Sept 27	Sept 20
Providence, Rhode Island	Sept 27	Sept 20
Kearney, Nebraska	Oct 11	Oct 04
Albany, New York	Oct 11	Oct 04
Canton, New York	Oct 11	Oct 04
Raleigh, North Carolina	Oct 11	Oct 04
Columbus, Ohio	Oct 11	Oct 04
Williamsport, Pennsylvania	Oct 11	Oct 04
Burlington, Vermont	Oct 04	Sept 27
Green Bay, Wisconsin	Sept 20	Sept 13
Elkins, West Virginia	Oct 18	Oct 11

1. Latest seeding date after which 260 or 350 growing degree days can be expected. Growing degree days are an arithmetic accumulation of daily mean temperatures above a certain base. In Table 1, the base temperature used is 50° F. For other base temperatures, the generally accepted value below which cereal rye will not grow.

Management: Arostook, grown as a cover crop, should be managed in the manner typical of the management of any cover crop.

April 1984
VENTO-Chester, PA

§542.42 SCS-ECS-001, Plant Materials Allocation and Distribution

542.43

Page 3

EVALUATIONS	EVAL RATING	HEED TO PLANT	EVAL		EVAL RATING
			1	2	
GROWTH CHARACTERISTICS					
FOLIAGE					
38. Density of foliage	A	X			
39. Attractiveness of foliage	A	X			
40. Height at end of growing season	Ft.	X			
41. Crown width at end of growing season	Ft.				
42. DBH - Diameter of trunk at 4 1/2 ft.	In.				
43. Width of colony of plants spread by rhizomes	Ft.				
PLANTS					
44. Abundance of flowers	A				
45. Dominant flowering period, Month	Month				
46. Attractiveness of flowers	A				
FRUIT					
47. Abundance of fruit	A				
48. Attractiveness of fruit	A				
49. Approximate maturity date - 11/15 = Nov. 15	Date				
50. Persistence of fruit to stay on plant	A				
EROSION CONTROL					
51. Density of Seeded Plants	B				
52. Effectiveness to control erosion	A				
53. Adaptation to soil, site and climatic area	A				
LITTER					
54. Amount of leaf drop and litter accumulation	A				
55. Persistence of litter	A				
56. Compatibility with other plants or invading plants	A				
WILDLIFE USE					
57. Type of wildlife using vegetation 3 = Songbirds	3 =				
58. Season of use of vegetation 3 = Spring	3 =				

1/ For use of PMS only 2/ For use of key punch operator only

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(190-V-NPMM, August 1984)

Page 1

EVALUATIONS	EVAL RATING	HEED TO PLANT	EVAL		EVAL RATING
			1	2	
13. Seeding rate in pounds per acre	lbs.				
EVALUATIONS					
14. Approximate rainfall received this evaluation year	In.	X			
15. Severity of weed competition (end of growing season)	C	X			
16. Weeds weeded	A	X			
17. Was irrigation applied Y = Yes, N = No	Y	X			
18. Fertilizer applied - Date = March 17 = 03/17	Date				
19. Actual amount of fertilizer applied (Use One Code)	lb/acre				
20. Survival - Percent of plants alive at end of season	Percent	X			
21. Sprouting - Percent of plants alive in spring	B				
22. Insect - Cinf (Use One Code Only)	OT = Other, ON = Unknown, BS = Borer, GR = Grasshopper, H = Hopper, W = Weevil, etc.				
23. Insect - Percent of plants or plants not affected	B				
24. Disease - Same CA = Canker, F = Fungus, B = Bacteria, etc.	CA = Canker, F = Fungus, B = Bacteria, etc.				
25. Disease - Percent of plants or plants not affected	B				
26. Drought - Resistance to drought	A				
27. Heat - Resistance to heat	A				
28. Cold - Resistance to cold	A				
29. Big domestic livestock grazed the situation	Y = Yes, N = No				
30. Ice - Resistance to damage	A				
31. Wind - Resistance to wind damage	A				
32. Water - Resistance to saturated soil condition or flooding condition	A				
33. Shade - Resistance to competition	A				
34. Pollution - Resistance to industrial air, water, or other pollutants	A				
35. Was planting destroyed by animals, etc.	N				
36. Spread by rhizomes, stolons or layering	A				
37. Spread by seed	A				

1/ For use of PMS only 2/ For use of key punch operator only

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

TD John Brown F.O. anywhere ST 12 (504)
 Project Number 127002K (502) CM 133 (505) Evaluation Tr. 84 (501)
 District Competitor F.R. White (503) WAA 132 (506) Purpose-IND (511)
 Plant to be Evaluated Swamp Characteristic Oak PI Number RS0215 (1)
 1. Black-jack Oak (500) 2. Standards for Comparison (531)

"Soft" Series	[507] Texture Modifier	[508] Texture Type	[509]
	<p>The performance of the plant to be evaluated will be compared against the Standard(s) for Comparison. Information to be evaluated is identified in the evaluation column. Evaluate other factors if you notice something you feel significant. Use the designated evaluation rating system or enter requested figures.</p>		

EVALUATIONS	EVAL. RATING	RECORD EVALUATIONS IN REPLY			
		NEED TO EVAL. PLANT	REPLY		
			1.	2.	3.
		1/	2/	3/	
		Y	N	Z	
SITE AND ESTABLISHMENT DATA					
1. Evaluation of Planting, feet above sea level	Feet				
2. Direction row faces (windbreak) inward, etc	N S E W				
3. Approximate field slope	Percent				
4. Seeded conditions at time of planting	A				
5. Moisture conditions at time of planting	A				
6. Effectiveness of mulch application	A				
7. Were the plant materials received in good condition	Y N				
8. How many plants or plants were protected	No.				
9. Planting Method	Y N				
10. Y/N Bare roots: BB = Balled Burlap	Ent				
CNC = COMBINEF					
Planting date: 1/17/76 = 1/17/76	1/17/76				
11. Plants, if randomly spaced	FT				
12. Spacing between rows	FT				

*Soil Series - Enter series name.
For symbols of texture modifiers and
type refer to reverse side of this
page.

1/ For use of PMS only 2/ For use of key punch operator only

EVALUATIONS	EVAL RATING	REED TO EVAL	FEAT PART	SYD 1	SYD 2
59. Degree of Use of Foliage	B				
SEED DR EMILT - Wildlife Use					
60. Wildlife use for cover: S = Squirrels	S, B				
61. Wildlife use for food: S = Squirrels, A = Small animals	S, B, A				
62. Dominant season of use: S = Spring, FA = Fall	S, B, FA				
63. Dominant season of use: S = Spring, FA = Fall	S, B, FA				
64. Dominant season of use: S = Spring, FA = Fall	S, B, FA				
65. Dominant season of use: S = Spring, FA = Fall	S, B, FA				
66. Degree of use	A				
OVER - Wildlife - nesting, loafing, escape					
67. Wildlife use for cover: S = Squirrels, B = Gambelids	S, B				
68. Wildlife use for food: S = Squirrels, A = Small animals	S, B, A				
69. Dominant season of use: S = Spring, FA = Fall	S, B, FA				
70. Dominant season of use: S = Spring, FA = Fall	S, B, FA				
71. Degree of use	A				
WINDBREAK FANSTEAD ON FIELD					
72. Effectiveness of controlling wind erosion	A				
73. Effectiveness of controlling wind erosion	A				
74. Effectiveness of controlling wind erosion	A				
75. Effectiveness of controlling wind erosion	A				
76. Effectiveness of controlling wind erosion	A				
77. Effectiveness of controlling wind erosion	A				
78. Effectiveness of controlling wind erosion	A				
79. Effectiveness of controlling wind erosion	A				
80. Effectiveness of controlling wind erosion	A				
81. Effectiveness of controlling wind erosion	A				
82. Effectiveness of controlling wind erosion	A				
83. Effectiveness of controlling wind erosion	A				
84. Effectiveness of controlling wind erosion	A				
85. Effectiveness of controlling wind erosion	A				
86. Effectiveness of controlling wind erosion	A				
87. Effectiveness of controlling wind erosion	A				
88. Effectiveness of controlling wind erosion	A				
89. Effectiveness of controlling wind erosion	A				
90. Effectiveness of controlling wind erosion	A				
91. Effectiveness of controlling wind erosion	A				
92. Effectiveness of controlling wind erosion	A				
93. Effectiveness of controlling wind erosion	A				
94. Effectiveness of controlling wind erosion	A				
95. Effectiveness of controlling wind erosion	A				
96. Effectiveness of controlling wind erosion	A				
97. Effectiveness of controlling wind erosion	A				
98. Effectiveness of controlling wind erosion	A				
99. Effectiveness of controlling wind erosion	A				
100. Effectiveness of controlling wind erosion	A				

STELLIS SMILEY MOTIVITAS EVALUATION RATING SYSTEM

A. VISUAL OBSERVATION		B. RATING BY PERCENT	
- Excellent	5 - Fair	1 - 30-100%	6 - 10-49%
- Good	3 - Poor	2 - 40-89%	7 - 30-59%
- Average	0 - None	3 - 70-79%	8 - 20-59%
		4 - 80-99%	9 - 10-19%
		5 - 50-59%	0 - 0-9%

3/ For use of PMS only Z/ For use of key punch operator only

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EVALUATIONS	EVAL BATING	NEED TO EVAL	PLANT	STD	
				1	2
13. Seeding rate in pounds per acre	100				
14. Approximate rainfall received this evaluation year	In.				
15. Severity of weed competition	C				
16. Weeds controlled	A				
17. Was irrigation applied Y = Yes, N = No	Y				
18. Fertilizer applied - Date - March 17 - 03/17	Date				
19. Actual amount of N, P, K, 220 (Use One Code)	lb/Ac				
20. Survival - Percent of plants alive at end of	Percent				
21. Spring Recovery - Plants alive in spring	%				
22. Insect - Kind (Use One Code Only)	OT = Other, UN = Unknown BN = Borer, GN = Grasshopper UC = Caterpillar, SH = Spiny Mea US = Other Scales, TH = Tip Moth				
23. Disease - Kind (Use One Code Only)	CA = Canker, FH = Fungus OT = Other, UT = Other BA = Bacteria				
24. Disease - Percent of plants or plants not affected	%				
25. Disease - Percent of plants or plants, not affected	%				
26. Drought - Resistance to drought	A				
27. Heat - Resistance to heat	A				
28. Cold - Resistance to cold	A				
29. Big domestic livestock grazed the planting	Y = Yes N = No				
30. Ice - Resistance to damage	A				
31. Wind - Resistance to wind damage	A				
32. Water - Resistance to saturated soil condition or	A				
33. Shade - Resistance to competition	A				
34. Pollution - Resistance to unusual air, water, or chemical	A				
35. Was planting disturbed by mammals, etc	Y = Yes N = No				
36. Spread by rhizomes, stolons or layering	A				
37. Spread by seed	A				

EVALUATION BATING SYSTEMS

A. VISUAL OBSERVATION
1 - Excellent 9 - Fair
2 - Good 8 - Poor
3 - Average 7 - None
4 - 50-50% 6 - 0-5%

B. BATING BY PERCENT
1 - 80-100% 9 - 40-49%
2 - 60-79% 8 - 20-39%
3 - 40-59% 7 - 10-19%
4 - 20-39% 6 - 0-9%

C. BATING BY SEVERITY
1 - Excellent 9 - Fair
2 - Good 8 - Poor
3 - Average 7 - None
4 - 50-50% 6 - 0-5%

1/ For use of PMS only 2/ For use of key punch operator only

542-108

(190-V-NPMM, August 1984)

Instructions for Completion of Form SCS-ECS-010
Evaluation of Woody Field Plantings

The plant materials specialist should complete the blocks

YO = Name of district conservationist or other.

FO = Location of field office.

ST = FIDS code number of state in which planting is made.

Project Number = Alpha numerical number from the Long-Range Plan for Field Plantings.

CN = FIDS code number of county in which planting is located.

Evaluation Year = Last 2 digits of year in which evaluation is being made.

District Coordinator = Name. (If two or more plantings of the same species are made by the same coordinator, you may designate each planting by inserting a number after the coordinator's name.)

MIRA = Major Land Resource Area in which planting is made.

Purpose = See paragraph 601.11(d)(3)(iv) of National IRM User Handbook or obtain from the Long-Range Plan for Field Plantings.

Plant to be Evaluated = Featured plant (Feat. Plant) Common name or scientific name. This data is not entered into the data base

PI OR 900 Number = Accession number for Feat. Plant.

Standard for Comparison = List the one or two standards for comparison in the order they occur in the Long-Range Plan for Field Plantings. Use either name or accession number, but use must be consistent year after year.

Use Column = DO NOT MARK IN THIS COLUMN!!!

The PMS will designate the evaluation factors to be recorded by entering an "x" or check mark or an appropriate date or season in column "Need to Evaluate." These evaluation factors should be in accordance with the sample SCS-ECS-010 attached to the Long-Range Plan for Field Plantings.

The field office with the assistance of the PMS or other plant scientists as necessary, should complete.

Soil Series = On which planting is made.

Texture Modifier and Texture Type - See back cover sheet on SCS-ECS-010

Evaluations of plant performance requested, in the "Need to Evaluate" column, will be recorded in the designated evaluation columns "Feat. Plant," "STD 1," and/or "STD 2" by the DC or others.

\$542.44 Instructions for completion of
SCS-ECS-10, Evaluation of Woody
Field Plantings

Page 4

EVALUATIONS	EVAL RATING 1/	NEED TO EVAL 2/	FEAT PLANT		STD 1/	STD 2/
			1/	2/		
59. Degree of Use of Foliage	B					
SEED OR FRUIT - Wildlife Use						
60. Type of wildlife using fruit: S = Squirrels A = All game, B = Birds, C = Small animals	S, B, A					
61. Dominant season of use: Sp = Spring, FA = Fall	Sp, FA					
62. SE = Summer, W = Winter (Use the 1000 day)	A					
63. Degree of use						
COVER - Wildlife - nesting, loafing, escape						
64. Wildlife use for cover: S = Squirrels, B = Birds, A = All game, C = Small animals	S, B, A					
65. Dominant season of use: Sp = Spring, FA = Fall	Sp, FA					
66. SE = Summer, W = Winter, S = Spring, W = Winter	A					
67. Degree of use						
WINDBREAK, FAVORABLE OR FIELD						
68. Effectiveness of controlling wind erosion	A	X				
69. Does the plant compete with other trees or shrubs?	N	X				
70. Density adequate to control wind erosion	B					
71. Summer effectiveness	A	X				
72. Winter effectiveness	A	Y				
SCREEN OR NOISE BARRIER						
73. Effectiveness of planting - Spring	A					
74. Summer	A					
75. Fall	A					
76. Winter	A					
77. Density of screen planting	A					
VISUAL ENHANCEMENT						
78. Attractiveness of plant	A					
79. Shade	A					
80. Are dropped leaves or fruit a nuisance	Y					
81. Other undesirable features	N					
82. Remarks						

EVALUATION RATING SYSTEM

- 1 - VISUAL OBSERVATION
 1 - Excellent
 2 - Good
 3 - Average
 4 - Fair
 5 - Poor
 6 - None
- 7 - BATING BY PERCENT
 1 - 50-100%
 2 - 40-50%
 3 - 30-40%
 4 - 20-30%
 5 - 10-20%
 6 - 0-10%

1/ For use of PMS only 2/ For use of key punch operator only

\$542.43 cont.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

First Year of Planting

SCS-ES-11
3/70

EVALUATION OF HERBACEOUS FIELD PLANTINGS

1. James Walbridge, D.C. F. O. Associate S. 19 (604)
Project Number 4853308 (602) DRY 98 (603) Evaluation Yr. 83 (601)
District Supervisor Joseph M. Rose, Jr. (605) NMA 131A (606) Purpose CARP (612)
Plant to be Evaluated Comets Indiangrass PI Number 434362 (1)
1. Checkmate Indiangrass (607) 2. Standard for Comparison (608) Texture Type CL (609)

The performance of the plant to be evaluated will be compared against the Standard(s) for Comparison information. To be evaluated is identified in the evaluation columns. Evaluate other factors if you are obtaining you feel significant. Use the designated evaluation rating system or enter requested figure.

EVALUATIONS	EVAL RATING	NEED TO CVAL	RECORD EVALUATIONS IN THE FOLLOWING			
			PLANT	1/	2/	3/
SITE AND ESTABLISHMENT DATA						
1. Were plant materials received in good condition	Yes	Y	Y			
2. Plant dates: 03/78 if second or other year	None	X				
3. Number of acres, number of plants	None	X				
4. Seeding: 1/2 - Transplant - 7/8 - Other - 0/1	DR, BR	X				
(Use one code)						
5. Pounds per acre or spacing between plants	194	Y	9			
6. Seeded condition at time of planting	A	Y	1			
7. Was Moisture adequate at time of planting	Y	X	X			
EVALUATIONS						
8. Approximate rainfall received this evaluation year	In.	X	4.1			
9. Severity of weed competition	C	X	9			
10. Was Irrigation Applied	N	X	N			
11. Was Mulch Applied	Y	X	Y			
12. Fertilizer Applied	None	X	04/20			
13. Amount of actual N, P, KOS, AZO Applied	164AC	Y	20-10-0			

EVALUATION RATING SYSTEMS

A. VISUAL OBSERVATION
 0 - Excellent
 1 - Good
 2 - Fair
 3 - Average
 4 - None

B. RATING BY PERCENT
 0 - 0-10%
 1 - 10-20%
 2 - 20-30%
 3 - 30-40%
 4 - 40-50%
 5 - 50-60%
 6 - 60-70%
 7 - 70-80%
 8 - 80-90%
 9 - 90-100%

C. RATING BY SEVERITY
 0 - Severe
 1 - Good Severe
 2 - Mild Severe
 3 - Mild

1/ For use of PMS only 2/ For use of key punch operator only

\$542.45 SCS-ECS-011, Evaluation of Herbaceous Field Plantings

\$542.44 cont.

EVALUATION OF HERBACEOUS FIELD PLANTINGS

U.S. DEPARTMENT OF AGRICULTURE Second Year of Evaluation of Same Plantings 542-15-11
SOIL CONSERVATION SERVICE 3/80

TO James W. Adams, D.C., F.O. Agriculture ST 28 (804)
Project Number 4875108 (802) EXT 02 (805) Evaluation Yr. 84 (801)
District Cooperative Joseph W. Thomas (803) MGR 123 (806) Purpose CRP (812)
Plant to be Evaluated Common milk-thistle PI Number 434362 (1)
1. Chaparral Standard for Comparison (827) 2. Standard (828)
*Soil Series Chaparral (807) Texture Modifier Standard (808) Texture Type Standard (809)

The performance of the plant to be evaluated will be compared against the Standard(s) for Comparison Information, to be evaluated is identified in the evaluation columns. Evaluate other factors if you notice something you feel significant. Use the designated evaluation rating system or enter requested figure.

EVALUATIONS	VIAL RATING 1/	NEED TO PLANT		RECORD EVALUATIONS IN	
		1/	2/	1/	2/
1. Were plant materials received in good condition	Yes				
2. Plant date - 03/78 if second or other year	Yes				
3. Number of acres, number of plants	AC				
4. Planting method - Drilled - DR, Broadcast - BR, Scatter - SP, Transplant - TR, Other - OT (Use one code)	DR				
5. Pounds per acre or spacing between plants	lbs				
6. Seedbed condition at time of planting	A				
7. Was moisture adequate at time of planting	Y				
8. Approximate rainfall received this evaluation year	in.				
9. Specificity of weed competition	C				
10. Was irrigation applied	Y				
11. Was mulch applied	Y				
12. Fertilizer applied	lbs/ac				
13. Amount of actual N, P, K, etc. Applied	lbs/ac				

EVALUATION RATING SYSTEMS

A. VISUAL OBSERVATION 8. RATING BY PERCENT
1 - Excellent 7 - Fair 6 - 20-49%
2 - Good 5 - 50-69% 4 - 70-79% 3 - 80-89%
5 - Average 0 - None 6 - 20-29% 7 - 30-39%
8 - 40-49% 9 - 50-59% 0 - 0-9%

1/ For use of PMS only 2/ For use of key pinch operator only

Page 2

EVALUATIONS	VIAL RATING 1/	NEED TO PLANT		RECORD EVALUATIONS IN	
		1/	2/	1/	2/
14. Fertilizer applied - Date, Ex. 03/78 = Mar. 78	Date				
15. Second application	lbs/ac				
16. Spring harvest (harvest other year)	Y				
17. Seeding 1st yr. (1st yr.)	Y				
18. Seeding 2nd yr. (2nd yr.)	Y				
19. Plants per sq. ft. - Seed	Y				
20. Spreading rate by volume, rhizomes, etc	Y				
21. Spreading rate from seed	Y				
22. Plant vigor or thriftiness	Y				
23. Resistance to insects	Y				
24. Disease	Y				
25. Inundation	Y				
26. Salinity	Y				
27. Growth	Y				
28. Wetness (wet soil)	Y				
29. Acid	Y				
30. Was the planting destroyed	Y				
31. Seed Production	Y				
32. Is the plant able to compete with other plants	Y				
33. Grazing Animals (Use no more than 4 codes) S = Sheep, H = Horse, D = Deer, E = Elk C = Cow, B = Buffalo, G = Goat, P = Pig, R = Rabbit, T = Turkey, F = Fox, M = Moose, W = Wolf, O = Other	Y				
34. Animal unit days per acre or animal performance	Y				
35. Grazing Summer	Y				
36. Grazing Fall	Y				
37. Grazing Winter	Y				
38. Plant recovery following grazing - Spring	Y				
39. Plant recovery following grazing - Summer	Y				
40. Plant recovery following grazing - Fall	Y				
41. Plant recovery following grazing - Winter	Y				
42. What percent of the total production	Y				
43. Was harvest	Y				
44. Erosion Control, Ground Cover Density	Y				

EVALUATION RATING SYSTEMS

A. VISUAL OBSERVATION 8. RATING BY PERCENT
1 - Excellent 7 - Fair 6 - 20-49%
2 - Good 5 - 50-69% 4 - 70-79% 3 - 80-89%
5 - Average 0 - None 6 - 20-29% 7 - 30-39%
8 - 40-49% 9 - 50-59% 0 - 0-9%

1/ For use of PMS only 2/ For use of key pinch operator only

542.45

Page 2

EVALUATIONS	EVAL RATING	NEED TO EVAL	PLANT		STD
			1	2	
42. Spread by stolons, rhizomes, etc	A	X			
43. Spread by volunteer seedlings	A				
44. Is plant adapted to this site? Yes, No	Y	X			
45. Visual quality on this site, attractive foliage	A				
46. Visual quality attractiveness of flower	A				
47. Effectiveness for intended use, visual quality	A				
48. WILDLIFE COVER Effectiveness	A				
49. Wildlife use of seed or fruit	A				
50. Type of wildlife using seed (Use one Code) A = Small animals, B = Ducks, C = Quail, D = Pheasants, E = S.	A				
51. Dominant season of use for food (Use one Code) A = Spring, B = Summer, C = Fall, D = Winter	A				
52. Type of wildlife using foliage - dominant type A = Small animals, B = Ducks, C = Quail, D = Pheasants, E = S.	A				
53. Dominant season of use of foliage for food (Use one Code) A = Spring, B = Summer, C = Fall, D = Winter	A				
54. Dominant season of use of foliage for food (Use one Code) A = Spring, B = Summer, C = Fall, D = Winter	A				
55. Clipping date 1, example 05/16 = May 16	Date				
56. Forage yield - pounds air dry/acre	lbs.				
57. Recovery following clipping	A				
58. Clipping date 2, as above	Date				
59. Forage yield, as above	lbs.				
60. Recovery following clipping	A				
61. Clipping date 3, as above	Date				
62. Forage yield, as above	lbs.				
63. Recovery following clipping	A				
64. Clipping date 4, as above	Date				
65. Forage yield, as above	lbs.				
66. Recovery following clipping	A				
REMARKS: Forage was about 20 inches tall and Cheyenne grew in 15 inches by the end of the growing season					

EVALUATION RATING SYSTEMS

A. VISUAL OBSERVATION
 1 - Excellent 7 - Fair
 2 - Good 8 - Poor
 3 - Average 9 - None

B. RATING BY PERCENT
 1 - 90-100%
 2 - 70-89%
 3 - 50-69%
 4 - 30-49%
 5 - 10-29%
 6 - 0-9%

1/ For use of PMS only 2/ For use of key punch operator only

Page 2

EVALUATIONS	EVAL RATING	NEED TO EVAL	PLANT		STD
			1	2	
14. Fertilizer applied - Date, Ex. 3/2/16 - Mar. 16	Date				
15. Actual application	lbs/acre				
16. Spraying (Date and other info.)		Y			
17. Plant Survival	A				
18. Spreading rate by stolons, rhizomes, etc	A	X			
19. Spreading rate from seed	A				
20. Plant vigor or sturdiness	A	X			
21. RESISTANCE to insects	A	X			
22. Disease	A	X			
23. Inundation	A				
24. Salinity	A				
25. Drought	A	X			
26. Wetness (wet soil)	A				
27. Acid	A				
28. Was the planting successful?	Y	X			
29. Seed Production	A	X			
30. Is the plant able to compete with other plants?	A	X			
31. Grazing Animals (Use no more than 4 codes) A = Deer, B = Beef Cattle, C = Dairy Cattle, D = Goat, E = Sheep, F = Horse, G = Pig, H = Rabbit, I = Squirrel, J = Turkey, K = Wild Bird, L = Wild Mammal, M = Wild Reptile, N = Wild Amphibian, O = Wild Insect, P = Wild Fish, Q = Wild Bird, R = Wild Mammal, S = Wild Reptile, T = Wild Amphibian, U = Wild Insect, V = Wild Fish	A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V				
32. Animal unit days per acre of animal performance	AUD or lbs/acre				
33. Grazing Summer	lbs/acre				
34. Grazing Fall	lbs/acre				
35. Grazing Winter	lbs/acre				
36. Plant recovery following grazing - Spring	A				
37. Plant recovery following grazing - Summer	A				
38. Plant recovery following grazing - Fall	A				
39. Plant recovery following grazing - Winter	A				
40. What percent of the total production	%				
41. ENDUSE CONTROL (GROUND COVER) DENSITY	B	X			

EVALUATION RATING SYSTEMS

A. VISUAL OBSERVATION
 1 - Excellent 7 - Fair
 2 - Good 8 - Poor
 3 - Average 9 - None

B. RATING BY PERCENT
 1 - 90-100%
 2 - 70-89%
 3 - 50-69%
 4 - 30-49%
 5 - 10-29%
 6 - 0-9%

1/ For use of PMS only 2/ For use of key punch operator only

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(190-V-NPMM, August 1984)

-1-

The name of the Cooperator and the Test. Plant accession number should be written at the top of pages 2, 3 and 4 to avoid mixing evaluation forms when disassembling same.

§542.46 Instructions for completion of
SCS-ECS-011, Evaluation of Herbaceous
Field Plantings

542.47

1. Seed resource material being produced in State by SACD powers Commercial seed companies, or State of private nurseries and estimated amount of seed, number of woody plants, or number of vegetative material of each variety produced.									
NAME OF VARIETY BEING PRODUCED	EST. RETAIL VALUE PER UNIT	EST. PRODUCTION LAST YEAR	EST. RETAIL VALUE PER UNIT	EST. PRODUCTION LAST YEAR	EST. RETAIL VALUE PER UNIT	EST. PRODUCTION LAST YEAR	EST. RETAIL VALUE PER UNIT	EST. PRODUCTION LAST YEAR	EST. RETAIL VALUE PER UNIT
SEED			BULK POUNDS						
Alfalfa big bluestem	3.15	70,000	70,000	3.15					
Cameroon big bluestem	3.00	5,000	5,000	3.00					
Kaw big bluestem	2.25	12,000	12,000	2.25					
Blackwell switchgrass	5.00	35,000	35,000	5.00					
Knibow switchgrass	6.00	5,000	5,000	6.00					
Cave-in-Rock switchgrass	5.80	2,200	2,200	5.80					
Osage indiangrass	6.35	3,000	3,000	6.35					
Cheyenne indiangrass	5.55	5,000	5,000	5.55					
Hoodward sand bluestem	6.80	4,500	4,500	6.80					
Garden sand bluestem	6.95	5,000	5,000	6.95					
Barton western wheatgrass	4.00	15,000	15,000	4.00					
Rosana western wheatgrass	4.35	7,500	7,500	4.35					
Arriba western wheatgrass	4.00	8,000	8,000	4.00					
Tezoka buffalograss	8.00	1,000	1,000	8.00					
El Reno sidecoats grama	2.45	7,000	7,000	2.45					
Vauphan sidecoats grama	2.45	7,000	7,000	2.45					
Picnic sidecoats grama	3.70	7,000	7,000	3.70					
Trailway blue grama	2.80	10,800	10,800	2.80					
Bend sand foxtailgrass	3.00	1,000	1,000	3.00					
Pharbat beardless wheatgrass	5.55	3,000	3,000	5.55					
Garrison creeping foxtail	5.55	3,000	3,000	5.55					
Goshute prairie sandreed	10.40	3,900	3,900	10.40					
Frutana thickspike wheatgrass	6.90	4,000	4,000	6.90					
Luna pubescent wheatgrass	2.20	10,000	10,000	2.20					
Sandera rocky mountain penstemon	34.50	200	200	34.50					
Jose tall wheatgrass	2.00	1,000	1,000	2.00					

1/ SACD Seedling Resource Areas (1) Soil quality (2) Water supply and conservation (3) Fire and wildlife habitat (4) Grazing and range management (5) Recreation (6) Other and community resource conservation and development

U.S. DEPARTMENT OF AGRICULTURE Soil Conservation Service		ANNUAL REPORT Plant Materials Activities and Accomplishments July 1, 1982		SCS-EC-008 1-11		KANSAS	
1. Total seedlings currently under evaluation				A. Inland		NUMBER 1,250	
				B. Adverse		35	
2. Field evaluation plantings currently active				A. Conducted by PMC		13	
				B. Conducted by PMS and/or other staff scientists		20	
3. Field plantings currently active				A. Accession being evaluated		5	
				B. Active field plantings		31	
4. Conservation field trials involving plant material currently active						0	
5. Plants named and released				A. Herbaceous			
				B. Woody			
(1) List herbaceous plants released during past year by name or number							
(2) List woody plants released during past year by name or number							
6. Field seedling quality seed produced at PMC last year				A. Accessions		9	
				B. Total amount of seed produced		36.2	
7. Foundation seed produced at PMC last year				A. Accessions		13	
				B. Total amount of seed produced		3,322	
8. Woody seedlings produced at PMC last year				A. Accessions		25	
				B. Total amount of seedlings		550	
9. Vegetative materials produced at PMC last year				A. Accessions		5	
				B. Amount of material		75	
10. Plant materials publications or articles during past year				Technical		1	
				Popular		2	

§542.48 SCS-ECS-882, Seed and Plant Inventory and Request and Continuing Needs

8542.47 cont.

Part 542 - Exhibits

§542.49 Instructions for completion of SCS-ECS-582, Seed and Plant Inventory and request and Continuing Needs

Instructions for Completion of SCS-ECS-582 Seed and Plant Inventory and Needs

1 General

a. Plant materials specialists and plant materials center managers will coordinate preparation of this data to avoid duplication. Data sheets will be prepared for PHC inventory and needs (generally for on-center use and off-center field evaluation plantings). Separate sheets will be prepared for state needs (generally requests for field plantings, special plantings, conservation field trials, and commercial increase).

b. Information is to be printed legibly in the spaces provided. Only one letter, number, dash, etc., should appear in each column within a block. Accuracy and neatness are critical. Do not exceed the number of columns per block.

c. Use as many forms as are needed to list all accessions or cultivars on inventory or requested.

d. The inventory and requests will include all accessions or cultivars where the quantity on hand or requested amounts to or exceeds 10 pounds of herbaceous plant seed, 2 pounds of woody plant seed, or 25 plants.

2 Heading

a. Complete the heading information. If the inventory and request is for a plant materials center, name the plant materials center. If the request is for a state (usually prepared by the FHS), name the state and put a dash in the Plant Materials Center block. Enter the name of the person submitting the form for possible contact if questions arise.

b. Use a separate sheet for recording inventory and requests for vegetative plant materials (plants, clones, etc.). Record in the heading the word 'Vegetative' for that sheet(s) and 'Seed' for all others.

3. Recording data

a. Card Columns 1 - 6 and 7 - 15 are left justified. This means the first letter of the plant symbol must be placed in card column 1 and the first letter of the cultivar or accession must be placed in card column 7.

-1-

b. Card columns 18 - 21, 22 - 25, 26 - 29, 30 - 33, 34 - 37, 38 - 41, 42 - 45, 47 - 50, 52 - 55, 57 - 60, 61 - 64, 65 - 68, 69 - 72, 73 - 76, and 77 - 80 are right justified. This means that the last digit of the number must be placed in the right column of the block. (All blanks are read as zero by the computer, so that []210] would be read as 900 rather than 90 as intended.) Use no decimals -- for example 89.5 is to be entered as []895].

c. Enter the quantity of seed on hand or requested in pounds. Enter the quantity of vegetative materials (plants, clones, rhizomes, bushels) in numbers.

d. In all instances, 'FOUN' means foundation class plant materials and 'FP' means field planting class materials. Designate Breeder class seed in columns 18, 26 and 34 with 'B'.

e. Card columns 46, 51, and 56 'TYPE' -- enter 'F' for foundation plantings, 'P' for field plantings, or 'S' for special plantings.

Major Items to be Completed

Card Column	Term	Description
1 - 6	PLANT SYMBOL	List all accessions in alphabetical order. Enter the plant symbol as shown in the <u>National List of Scientific Plant Names</u> (NLSN), published by USDA, SCS. If a plant is not listed in the NLSN, print the first two letters of the genus plus the first two letters of the species plus X. Example: If <i>Arachis monnifolia</i> is not shown in the NLSN, ARCHON is to be entered in the space provided for plant symbol. A list showing the correct spelling of the genus, species and accession number of plants not shown in the NLSN is to be included as a supplement to the SCS-ECS-582.
7 - 15	CULTIVAR OR ACCESSION NUMBER	Enter the correct cultivar or accession number.
16 - 17	SOURCE	Source refers to the PHC producing the materials or expected to provide the materials.

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Major Items to be Completed (cont.)

The following symbols are to be used in the source column.

AB = Aberdeen	HA = Hawaii
AL = Alaska	KC = Knox City
AM = Americus	LI = Los Lunas
BF = Big Flats	LO = Lockeford
BI = Bismarck	MA = Manhattan
BR = Bridger	MP = MPNC
BV = Brooksville	PU = Pullman
CM = Cape May	QS = Quicksand
CF = Coffeaville	RI = Rose Lake
CO = Corvallis	TU = Tucson
EL = Elsberry	UP = Upper Colorado EPC

18 - 21	ON INVENTORY	Enter the amount of plant materials on hand at the PMC for each cultivar or accession.
22 - 25		
26 - 29	ESTIMATED	Enter the amount of plant materials expected to be produced during the current year's growing season for each cultivar or accession.
30 - 33	PRODUCTION	
34 - 37	MINUS	Enter the amount of plant materials on hand at the PMC that was allocated during a previous year and is committed to a specific project. If the material is no longer committed, record the amount in the 'ON INVENTORY' block only.
38 - 41	COMMITTED	
Blocks without column numbers	TOTAL AVAILABLE	This block need not be completed. It is for the convenience of the PHS or PMC manager only. It will be figured by the computer and will appear in printouts. Make the necessary computations and record the amount of the plant materials available for allocation, if this column is used.
42 - 45	PMC NEED	Enter the plant materials needs of the PMC for the coming fiscal year for on-center evaluation, for seed increase or foundation fields, or for off-center field evaluation plantings.

Major Items to be Completed (cont.)

47 - 50	FP or SP	Enter the plant materials needs of the state for the coming fiscal year for field plantings, special plantings, or conservation field trials.
52 - 55	INCR	Enter the plant materials needs of the state for the coming fiscal year for commercial increase of released cultivars.
57 - 60	CONTINUING	Based on state and PMC long-range programs and project plans, enter the anticipated plant materials needs for the three fiscal years following the coming fiscal year. These estimates will serve as a basis for allocation production.
61 - 64	NEEDS	
65 - 68		
69 - 72		
73 - 76		
77 - 80		

542.50

[illegible]

§542.51 SCS-ADS-308, District Receipt for
SCS Materials

SCS-PM-206
Rev. 7/77
File Code PM-15

DISTRIBUTION AND DELIVERY RECORD
(Seeds and Plants)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Order No. NY 208/84
Date 03/22/84
Ordered by L. DeWitte
Shipped to J. C. Doe
Date Shipped 03/27/84
Shipped by Parcel Post *air*
Freight Express
Cert. B/L No. Other

Delivered to: John C. Doe, DC
Soil Conservation Service
423 South Main Street
Moorestield, West Virginia 26836

For: George Haldeman

PLANT ACCESSION NO.	SPECIES	ROW PACKED	SEEDS (pounds)		PLANTS (number)
			Clear	Enclose	
PT-432176	<u>Andersonson Gerardii - 1975 seed</u> <u>big bluestem</u> Purity: 63% Germ: 34% Test Date: 03/12/76	4 bags	200 PLS		
PT-314321	<u>Panicum virgatum - 1976 seed</u> <u>switchgrass</u> Purity: 99.4% Germ: 93.6% Test Date: 02/10/77	2 bags	100 PLS		

Storage facility from which delivered Big Plants Plant Materials Center
Order prepared by FVS Filled by FVS Checked by SOL

Received by _____ Approved by *J. C. Doe*
Title _____ Title Manager
Date _____ Date 03/22/84

SCS-ECS-596, Distribution and
Delivery Record

§542.52 Amendment to the rule governing SCS policy on the operations of plant materials centers, (Federal Register, vol. 49, No. 62, March 29, 1984, 12188-9)

12188 Federal Register / Vol. 49, No. 62 / Thursday, March 29, 1984 / Rules and Regulations

PART 613--[AMENDED]

Accordingly, 7 CFR Part 613 is revised to read as follows

Sec
613.1 Purpose
613.2 Policy
613.3 SCS responsibilities in plant materials
613.4 Special production of plant materials
613.5 Plant materials centers

Authority: Pub. L. 74-46, 40 Stat. 163 (16 U.S.C. 590a-f); Pub. L. 74-210, 80 Stat. 525 (7 U.S.C. 1010-1011)

§ 613.1 Purpose

This part provides Soil Conservation Service (SCS) policy on the operations of plant materials centers. The centers have responsibilities for assembling, testing, releasing and providing for the commercial production and use of plant materials for programs of soil, water, and related resource conservation and development.

§ 613.2 Policy and objectives.

(a) It is SCS policy to assemble, comparatively evaluate, release, and distribute for commercial increase new or improved plant materials needed for broad programs of resource conservation and development for agriculture, wildlife, urban, recreation, and other land uses and environmental needs. It is SCS policy to conduct plant materials work in cooperation with other agencies of the U.S. Department of Agriculture, such as the Agricultural Research Service, and with other federal and state research agencies including state agricultural experiment stations. The emphasis of the SCS plant materials work is to find suitable plants for erosion control adapted to soil and site conditions where vegetation is difficult to establish. In contrast, the emphasis of research agencies and organizations in plant development is to improve economically important crops. The SCS program of testing and releasing new seed propagated plant materials follows the guidelines in "Statement of Responsibilities and Policies Relating to the Development, Release, and Multiplication of Publicly Developed Varieties of Seed-Propagated Crops," which was adopted in June 1972 by land grant colleges and interested federal agencies. SCS releases improved conservation plant materials requiring vegetative multiplication in ways appropriate for particular states and particular species by working with experiment stations, crop improvement associations, and other state and federal agencies.

(b) The objective of the plant materials activity is to select or develop special and improved plants, and

techniques for their successful establishment and maintenance to solve conservation problems and needs relate to

- (1) Controlling soil erosion on all lands
- (2) Conserving water.
- (3) Protecting upstream watersheds
- (4) Reducing sediment movement into waterways and reservoirs through the stabilization of critical sediment sources such as surface mined lands, highway slopes, recreation sites, and urban and industrial development areas.
- (5) Stabilizing disposal areas for liquid and solid wastes.
- (6) Improving plant diversity and lengthening grazing season on dryland pastures and rangelands.
- (7) Replacing brush on mountain slopes with fire-retarding plant cover to reduce the possibility of fires that threaten life and property or result in serious sediment sources.
- (8) Improving the effectiveness of windbreaks and shelterbelts for reducing airborne sediment, controlling snow drifting, and preventing crop damage from wind erosion.
- (9) Protecting streambank, pond, and lake waterlines from erosion by scouring and wave action.
- (10) Improving wildlife food and cover.
- (11) Selecting special-purpose plants to meet specific needs for environment protection and enhancement.
- (12) Selecting plants that tolerate air pollution agents and toxic soil chemicals.

§ 613.3 SCS responsibilities in plant materials.

SCS operates or enters into agreements with state universities or other state organizations to operate plant materials centers. SCS employs specialists for selecting and using plant materials. SCS responsibilities are to

(a) Identify the need for suitable plant materials and cultural and management methods in resource conservation and for environmental protection and enhancement.

(b) Assemble and comparatively evaluate plant materials at the plant materials centers and on sites where soil, climate, or other conditions differ significantly from those at the centers.

(c) Make comparative field plantings for final testing of promising plants and techniques in cooperation with conservation districts and other interested cooperators.

(d) Release cooperatively improved conservation plants and maintain the breeder or foundation stocks in ways appropriate for particular state and

Soil Conservation Service

7 CFR Part 613

Plant Materials Centers; Technical Amendments

AGENCY: Soil Conservation Service, USDA.

ACTION: Final rule; amendment to the rule.

SUMMARY: Minor editorial changes are being made to clarify and update the material published October 31, 1974, and April 17, 1975, in the Federal Register.

EFFECTIVE DATE: March 29, 1984

FOR FURTHER INFORMATION CONTACT: Thomas N. Shifflet, Director, Ecological Sciences Division, Soil Conservation Service, USDA, P.O. Box 2890, Washington, D.C. 20013, (202) 447-2587.

SUPPLEMENTARY INFORMATION: Since this rule became effective, several inconsistencies have been brought to light requiring the need to update it with several minor editorial changes. These changes do not significantly affect the rule.

This rule relates to internal agency management. Therefore, pursuant to 5 U.S.C. 553, it is found upon good cause that notice and other public procedures are impractical and contrary to the public interest, and good cause is found for making this rule effective on publication in the Federal Register. Since this rule relates to internal agency management, it is exempt from the provisions of E.O. 12291. Finally, this action is not a rule as defined by Pub. L. 96-354, the Regulatory Flexibility Act, and thus is exempt from the provisions of that Act.

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Plants (agriculture); Soil conservation.

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plant species by working with experiment stations, crop improvement associations, and other state and federal agencies.

(e) Produce limited amounts of foundation or foundation-quality seed and plants available by grant to or by exchange with conservation districts, experiment stations, other federal and state research agencies, and state seed certifying organizations that will use the material to establish seed fields, seed orchards or plantings for vegetative increase.

(f) Encourage conservation districts, commercial seed producers, and commercial and state nurseries to produce needed plant materials for conservation uses and to assist them in this production.

(g) Encourage the use of improved plant materials in resource conservation and environmental improvement programs.

§ 613.4 Special production of plant materials.

SCS can produce plant materials in the quantity required to do a specific conservation job if this production will serve the public welfare and only if the plant materials are not available commercially. This function will be performed only until the plant materials are available commercially. Specific production of plant materials by SCS requires the approval of the Chief.

§ 613.5 Plant materials centers.

(a) The National Plant Materials Center. The National Plant Materials Center at Beltsville, Maryland, serves as the central facility for assembling, increasing, and determining the characteristics of plant materials from foreign and domestic sources. Plant materials with potential value for conservation and related uses are distributed to other plant materials centers.

(b) Other Plant Materials Centers. There are 23 other plant materials centers. Each serves several major land resource areas. Seventeen of these other centers are operated by SCS, and six by cooperating agencies, as follows:

(1) Operated by SCS.

Tucson, Arizona
Lockeford, California
Brooksville, Florida
Americus, Georgia
Molokai, Hawaii
Aberdeen, Idaho
Manhattan, Kansas
Quicksand, Kentucky
East Lansing, Michigan
Coffeeville, Mississippi
Elsberry, Missouri
Bridger, Montana

Cape May Courthouse, New Jersey
Big Flats, New York
Corvallis, Oregon
Knox City, Texas
Pullman, Washington

(2) Operated by cooperating agencies with financial and technical assistance from SCS:

Los Lunas, New Mexico (New Mexico State University)
Bismarck, North Dakota (North Dakota Association of Soil Conservation Districts)

Meeker, Colorado (White River and Douglas Creek Soil Conservation Districts with partial funding from SCS)

(3) Operated by cooperating agencies with technical assistance from SCS:

Palmer, Alaska (State of Alaska)
Kingville, Texas (Caesar Kleberg Wildlife Research Institute, Texas Agricultural and Industrial University, and South Texas Association of Conservation Districts)

Nacogdoches, Texas (Stephen F. Austin University and the East Texas Association of Conservation Districts)

Dated: March 21, 1984.

Peter C. Myers,

Chief.

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